Virg Bernero, Mayor

CITY OF LANSING, MICHIGAN

Lansing Combined Sewer Overflow (CSO) Control Program

PROJECT PLAN AMENDMENT NO. 3

Draft

April 2007

Virg Bernero, Mayor

PUBLIC SERVICE DEPARTMENT
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April 3, 2007

Mr. Chad Gamble, P.E., Director
Lansing Public Service Department
732 City Hall
124 W. Michigan Avenue
Lansing, MI 48933

RE: Lansing CSO Control Program
Project Plan Amendment No. 3 - DRAFT

Dear Mr. Gamble,

Please find enclosed three copies of the draft Project Plan Amendment No. 3. for your review. For this amendment, we reviewed updated costs and benefits for sewer separation and combined retention, as well as the updated separation plan for remaining CSO areas. Based on this we find that sewer separation remains the most cost-effective alternative and would provide the best system performance and greatest environmental benefit for Lansing.

Following is the proposed schedule for submittal. The schedule is fairly tight. Please recall that the deadline for submittal of the project plan amendment to DEQ is July1, which is a Sunday this year, so allowing one business day of slack, we have scheduled delivery of the final documents to the City and DEQ for Thursday, June 28. Meeting this schedule qualifies the City for prioritization on the SRF Project Priority List (PPL) for the following fiscal year.

PROPOSED SCHEDULE

Preliminary Draft to City and DEQ:		04/03/07
Advertise Public hearing:		04/15/07
Conduct Public Hearing:		05/17/07
City Council Resolution:	By	06/11/07
Final Document to City and DEQ:	By	06/28/07

Please review the document and let me know when you can meet to review any comments you may have. Thank you for this opportunity to assist the City of Lansing with the CSO Control Program.

Sincerely,

Kevin Vander Tuig, P.E.
Program Manager, Tetra Tech

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COMBINED SEWER OVERFLOW CONTROL
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EXECUTIVE SUMMARY

In April 1991, the City of Lansing prepared a Project Plan for the purpose of providing an approvable Combined Sewer Overflow Control (CSO) program, as required by the National Pollutant Discharge Elimination System (NPDES) Permit, in effect at that time. CSO Control is required by the State of Michigan to prevent untreated sewage discharges to local water ways. The Michigan Department of Natural Resources (MDNR), now the Michigan Department of Environmental Quality (DEQ), approved the original project plan on April 1, 1992.

The project plan was also required for the City to qualify for project funding from the Michigan State Revolving Fund (SRF) Loan Program. The SRF loan program provides low-interest loans for financing wastewater treatment facilities, including CSO Control projects. To date, the City of Lansing has received 19 SRF loans for construction of the CSO projects totaling more than $156 million. The City of Lansing has satisfactorily met all project schedules since the inception of the planning phase of the project.

Due to the size and cost of the Lansing CSO Program, construction is being spread over six phases and 28 years. The SRF Program also requires the project plan to be updated every five years until the project is completed in 2020. Project Plan Amendments 1 and 2 were submitted in 1997 and 2002, respectively. Amendment No. 3 is due to the DEQ BY July 1, 2007.

NEED FOR PROJECT

The necessity of the CSO Control Program was documented in the 1991 Project Plan. Failure to implement the program would place the City of Lansing in non-compliance with the requirements of the NPDES permit. A copy of the current NPDES permit is attached as Appendix A. Basement flooding occurs in some homes located in combined sewer areas during wet weather periods. Several water quality problems in the Grand

River and the Red Cedar River were documented by the Tri-County 208 Plan, which directly linked the problems with the 40 combined sewer overflows. CSO sewer separation is keeping the City in compliance with State and Federal law, and helping to mitigate basement flooding and water quality problems.

CSO CONTROL PROGRESS

When CSO sewer separation construction began in 1992, there were 40 CSO structures and over 6,700 acres of combined sewer area. By the end of the 2006 construction season, 16 CSO structures (40 percent) were abandoned, 3,106 acres were separated, and 443 acres of sanitary sewer area were redirected away from combined sewer areas, so that now all separate sanitary sewer areas discharge directly to the Lansing Wastewater Treatment Plant. Sewer separation is approximately 50% complete based on areas separated and redirected from combined sewer outfalls. Table 1 provides a list of CSO separation areas and outfalls abandoned for projects initiated to date. Figure 1 shows Lansing CSO Phasing, and separated areas in light green. Following is a summary of progress through the 2006 construction season.

Construction

- Total 1991 combined sewer tributary area, acres: 7,167
- Combined area separated by the City of Lansing, acres: 2,880
- Combined area separated by others (Tollgate Drain): 226
- Separated sewer area redirected from combined sewer areas (Red Cedar Area M): 443
- Total area removed from contribution to overflow: 3,549 (50%)
- Total number of CSO structures abandoned: 16 of 40 (40%)
- New sanitary sewer constructed, miles: 43
- New water main constructed, miles: 20
- New roadway constructed, miles: 50
- Average annual overflow before project: 1.65 billion gallons
- Average annual overflow removed to date: 550 million gallons (33%)

Benefits of CSO Control/Sewer Separation

- Clean rivers (public health protection, aquatic habitat improvement, recreational opportunities, and increased property values)
- Basement flooding/SSO mitigation
- Streetscape and Infrastructure enhancement (green space, tree preservation, road improvements, water main and other utility upgrades)
- Improved reliability / capacity of new Lansing Avenue Pump Station (LAPS)
- More efficient and reliable wastewater treatment plant operation
- Improvement sewage collection and transportation system
- Cost-effective and reliable sewer system maintenance
- Meets MDEQ/USEPA requirements

Private Inflow Removal

- Properties inspected: 9,480
- Properties with inflow sources identified: 1,892
- Percentage of inflow properties where sources have been removed: 82%
- Percentage of all properties in compliance: 96%

Sewer separation has so far proved to be a very successful CSO control methodology for the City of Lansing. Other than the May 15-16, 2001, flooding event in the Tollgate Drain Area, there have been no cases of basement flooding in a completed CSO separation area due to wet weather flows. The May 2001 event has been shown to exceed a 100-year storm in and around the area where flooding occurred.

TABLE 1

ACREAGE SEPARATED AND CSO OUTFALLS ABANDONED TO DATE

Phase	Segment	SRF No. 5005-	Area Separated To Date, Acres	CSO Outfalls Abandoned/ Area Separated	Approximate Construction Completion Data
I	1	01	298	028, 029, 030, 031, 035, 036, 038, 039, 040	11/93
I	2	02	56	043	6/94
II	1	03, 04	11	Foster Avenue Sanitary Interceptor South and Pere Marquette Street	1/96
II	2	05, 06	156	041, Foster Avenue Sanitary Interceptor *North	6/96
II	3	07, 08	678	Area I, J, and Tollgate Drain	12/97
II	4	09	251	022 West**	12/98
II	5	10	18	Red Cedar Area K Sanitary Interceptor (by MDOT)	9/99
III	1	11	352	Northeast Sanitary Interceptor and Red Cedar Areas G and H	6/2002 11/2001
III	2	12	347	Moores Park Trunk Sewer and Red Cedar Area K	8/2001 10/2002
III	3	13	211	013 South	4/2003
III	4	14	276	037	12/2003
III	5	15	80	044	8/2004
IV	1	16, 17	455	018 East, 025, Capitol Loop	10/2005
IV	2	18	265	018 North, St. Joseph St	12/2006
IV	3	19	95	023, 013 West, Dumpster Alley, Michigan Ave	Ongoing
	Total		3,549		

* Construction of the Foster Avenue Interceptor provided a separate sanitary sewer outlet for 347 acres of previously separated area north of Hopkins Ave that had been flowing into the CSO regulator 042 service area.

** Separation of 022 West provided a separate sanitary sewer outlet for 96 acres of previously separated area that had been flowing into the CSO regulator 022 service area.

PROJECT PLAN AMENDMENT SUMMARY

Amendment No. 1 (Phase II, Segments 4-5 and Phase III, Segments 1-3)

Project Plan Amendment No. 1 was prepared in 1997 and approved by the DEQ in April 1998. The amendment focused on the proposed work to occur at the Lansing Ave Pump Station (LAPS), including:

- Delay construction of the equalization basin at the LAPS site to determine if the basin would be necessary, based on post-separation flows
- Reconstruct LAPS to remedy safety, reliability and capacity deficiencies in the 55-year old facility.
- Reiterates that sewer separation remains the recommended alternative for CSO Control in Lansing

Amendment No. 2 (Phase III, Segments 4-5 and Phase IV, Segments 1-3

Project Plan Amendment No. 2 was prepared in 2002 and included:

- Updated progress of Lansing's CSO Control Program
- Information regarding changes to the original Project Plan
- Advancing of work in the Capitol Loop area of downtown to coincide with the Michigan Department of Transportation (MDOT) roadway and streetscape reconstruction project
- Supplemental detail of the next five work segments
- Reiterates that sewer separation remains the recommended alternative for CSO Control in Lansing

Amendment No. 3 (Phase IV, Segments 4-5 and Phase V, Segments 1-3)

This Project Plan Amendment No. 3 is due by July 1, 2007, and addresses the following:

- Updates the progress of Lansing's CSO Control Program
- Provides supplemental detail of the next five work segments
- Incorporates recommendations of the 2020 Infrastructure Task Force to bring forward in the program some of the downtown projects, and
- Reiterates that sewer separation remains the recommended alternative for CSO Control in Lansing.

- Defers design and construction of the LAPS equalization basin to Phase VI to continue assessing the need for the basin and the volume required.

CSO CONTROL ALTERNATIVES AND COST EFFECTIVENESS

The 1992 CSO Project Plan included three alternatives, complete separation, maximum retention, and partial retention. Sewer separation was found to be the cost-effective alternative.

The recommended alternative of separation was further supported by an independent review completed by Camp Dresser & McKee (CDM) in 1998. The CDM review found that the cost-effectiveness analysis favored sewer separation even more than indicated in the original 1991 Project Plan.

This Amendment 3 report reconsiders the primary alternatives for the remaining CSO subareas. Table 2 summarizes the updated cost effectiveness for remaining CSO subareas where combined retention is considered feasible. The conceptual cost opinions are based on recent actual construction costs escalated to the January 2007 ENR index of 7880, and include only SRF eligible sewer activity.

TABLE 2

CONSTRUCTION COST COMPARISON-AREAS VIABLE FOR COMBINED RETENTION

CSO Subareas	Sewer Separation	Retention 1 1991 Project Plan Capture 1-yr, 1=hr 30 Min 10-yr, 1-hr	Retention 2 CDM 1998 Capture 1-yr, 1-hr storm
008, 009, 012, 015, 019	$54,819,000	$75,864,000	$65,588,000
021, 022, 024, 046	$69,609,000	$93,706,000	$90,939,000
032 and 034 (No 037)	$61,868,000	$86,715,000	$61,758,000
032 (No 037 or 034)	$19,714,000	$29,224,000	$22,841,000

Notes:

- The cost figures are based on SRF eligible activity and does not account for other ineligible activity related to sanitary sewers, storm sewers, and roads
- The cost figures do not incorporate any participation by the BWL, either eligible or ineligible.
- The retention options do not include the purchase of property if needed for locating it, special treatments if located in a park, nor sewer system rehabilitation.
- The costs are only for construction of the facilities and do not take into consideration long term operation, maintenance and replacement (OM&R) costs. OM&R costs tend to be higher for facilities and equipment than for sewers.

CONCLUSION

The CSO Control Program Plan has proven to be very effective thus far and sewer separation remains the recommended alternative for CSO Control in Lansing. Projected environmental impacts and mitigating measures remain unchanged from those discussed in the original project plan and included in the 1992, 1998, and 2003 Findings of No Significant Impact (FONSIs).

PROPOSED SCHEDULE FOR AMENDMENT NO. 3

Preliminary Draft to City and MDEQ:		04/03/07
Advertise Public hearing:		04/15/07
Conduct Public Hearing:		05/17/07
City Council Resolution:	By	06/11/07
Final Document to City and DEQ:	By	06/28/07

REMAINING WORK

CSO construction for the next five years includes Phase IV, Segments 4 and 5 and Phase V, Segments 1, 2, and 3 as shown in Table 3 and Figure 1.

Project Costs Remaining

Table 3 also summarizes the project cost opinions for all future segments. The cost opinions include engineering and a 10 percent contingency for construction. The opinion of total project cost for the next five segments is $146.9 million. The opinion of eligible project cost for the five segments is $102.6 million. The opinion of total eligible project cost for all remaining work is $241.1 million.

Cost to Average Residential User

The estimated monthly cost to a typical residential user for the next SRF loan (Phase IV, Segment 5) is $1.20.

TABLE 3

LANSING CSO CONTROL PROGRAM REMAINING WORK

Phase	Segment	Description	Project Period	Construction Start Year	Opinion of Eligible Project Cost ENR 7880 Million $
IV	4	Separation of Subareas 020, 018SE, 013NW, and Downtown	2005 - 2010	2007	26.0
	5	Separation of Subareas 045, 018SW, 013NE, 034A and Downtown	2006 - 2011	2008	19.1
V	1	Separation of Subareas 015N (014), 034B, and Downtown	2007 - 2012	2009	17.0
	2	Separation of Subareas 034C, 032 Trunk, and Downtown	2008 - 2013	2010	19.2
	3	Separation of Subareas 015S (014), 034D, and Downtown	2009 - 2014	2011	21.4
	4	Separation of Subareas 034E, 032 Local and Downtown	2010 - 2015	2012	16.6
	5	Separation of Subareas 009 (010) and Downtown	2011 – 2016	2013	16.7
VI	1 - 5	Separation of Subareas 008, 012 (011), 016, 017, 019, 026, and 033, and completion of downtown separation for Subareas 021, 22E, 024, and 046 (047), Lansing Ave Retention Basin. Improvements to the WWTP	2012 – 2020	2014 – 2018	105.1

- The project period generally includes 1.5 years for design and DEQ approval, 2 years for construction and 1 year for PPC monitoring and report.
- The need for a basin and improvements at the WWTP will depend on flows from separated areas and the approach the City takes to address Sanitary Sewer Overflows.
- Construction costs include 10% contingency.
- Eligible project costs have been approximated to include 70% of the total project cost

PUBLIC PARTICIPATION

A public hearing was held on Thursday, May 17, 2007, at 7:00 p.m. in the Lansing City Council Chambers to receive comment on the Draft CSO Project Plan Amendment No. 3. A notice of public hearing was published in the *Lansing State Journal* on Sunday, April 15, 2007 and the *Lansing City Pulse* on Monday April 16, 2007. Copies of the Draft CSO Project Plan Amendment No. 3 were made available for public inspection by the publication date of the notice of the public hearing. The period for receipt of written comments also ended on Thursday, May 17, 2007.

The following items will be included in Appendix C of Amendment No. 3:

- Public hearing and written comment advertisement and affidavit
- Hearing agenda
- Executive Summary handout
- List of attendees
- List of Speakers
- Transcript of hearing
- Responsiveness summary addressing questions and comments received
- Resolution adopting selected plan, passed by Lansing City Council

INTRODUCTION

This Project Plan Amendment No. 3 was prepared on behalf of the City of Lansing to obtain State Revolving Fund (SRF) loans for the next five years of CSO control construction projects. The original project plan was prepared in April 1991. It provided an approvable Final CSO Control Program as required by the 1987 NPDES permit.

The DEQ released a Finding Of No Significant Impact (FONSI) on February 27, 1992, for the proposed project, based on the findings in the original Project Plan, and approved the plan on April 1, 1992. The requirements of the SRF Loan Program include the provision that a FONSI on a segmented project remain in effect for five years. Should the total project require a time frame for the commencement of all segments greater than five years, a new FONSI must be released. This action helps ensure that the project plan remains applicable and essentially the same as the original plan. If changes are necessary, they are to be addressed in a new FONSI.

The following reports and studies have been previously prepared in connection with Lansing's CSO Control Program:

- "Report on Combined Storm Water Facilities," Lansing, Michigan, July 1972, McNamee, Porter and Seeley, Inc.
- "Lansing, Michigan Combined Sewer Overflow Draft Report," October 1978, McNamee, Porter and Seeley, Inc.
- "Red Cedar Segment of the Facilities Plan of Lansing," April 1980, Capital Consultants, Inc.
- "Lansing, Michigan, Final Facilities Plan," April 1980, McNamee, Porter and Seeley, Inc.
- "City of Lansing, Michigan, CSO Progress Report," October 1989, McNamee, Porter and Seeley, Inc.

- "City of Lansing, Michigan, Combined Sewer Overflow Interim Report," November 1990, McNamee, Porter and Seeley, Inc., in association with Capital Consultants, Inc., and Snell Environmental Group, Inc.
- "City of Lansing, Michigan, Combined Sewer Overflow Control Project Plan - Final", April 1991, McNamee, Porter and Seeley, Inc., in association with Capital Consultant, Inc., and Snell Environmental Group, Inc.
- "Lansing Combined Sewer Overflow Control Project Plan Supplement I (Phase II Detail)," April 1993, McNamee, Porter and Seeley, Inc.
- "Combined Sewer Overflow Control Project Plan Supplement II (Detail of Phases II and III)," December 1995, McNamee, Porter and Seeley, Inc.
- "Combined Sewer Overflow Control Project Plan Amendment No. 1", April 1997, McNamee, Porter and Seeley, Inc.
- "Combined Sewer Overflow Project Evaluation Final Report", July 1998, Camp Dresser & McKee
- "Combined Sewer Overflow Control Project Plan Amendment No. 2", June 2002, Tetra Tech MPS
- "Mayor's Downtown 2020 Infrastructure Task Force", November, 2004, Tetra Tech

This Amendment No. 3 provides information regarding Lansing's CSO Control Program in the following sections:

- CSO Control Program Overview
- CSO Control Progress Update
- Summary of Project Plan Changes to Date
- CSO Control Alternatives
- Remaining Work
- Public Participation

CSO CONTROL PROGRAM OVERVIEW

In April 1991, the City of Lansing prepared a Project Plan for the purpose of providing an approvable Combined Sewer Overflow Control (CSO) program, as required by the National Pollutant Discharge Elimination System (NPDES) Permit, in effect at that time. The Michigan Department of Natural Resources (MDNR), now the Michigan Department of Environmental Quality (DEQ), approved the original project plan on April 1, 1992. The project plan was also required for the City to qualify for project funding from the Michigan State Revolving Fund (SRF) Loan Program. The SRF loan program provides low-interest loans for financing wastewater treatment facilities, including CSO Control projects. Due to the size and cost of the Lansing CSO Program, construction is being spread over six phases and 28 years.

FIVE YEAR ENVIRONMENTAL REVIEW PERIOD

This document provides an update for the next five-year environmental review of the project plan, as required by the SRF Program. The SRF Program requires that the project plan for a segmented project be updated every five years until the project is completed. The original Project Plan was prepared in April 1991, and approved by MDNR on April 1, 1992. Project Plan Amendment No. 1 was prepared in April 1997, and approved by DEQ in April 1998. Project Plan Amendment No. 2 was prepared in June 1997, and approved by DEQ in January 2003. This five-year environmental review period will include Phase IV, Segments 4 and 5, and Phase V, Segments 1, 2, and 3.

COMPLETED PROJECTS

Table 1 summarizes sewer separation work completed to date.

TABLE 1

LANSING SEWER SEPARATION WORK COMPLETED

Phase	Segment	SRF No. 5005-	Area Separated To Date, Acres	CSO Outfalls Abandoned/ Area Separated	Approximate Construction Completion Data
I	1	01	298	028, 029, 030, 031, 035, 036, 038, 039, 040	11/93
I	2	02	56	043	6/94
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	Total		3,549		

* Construction of the Foster Avenue Interceptor provided a separate sanitary sewer outlet for 347 acres of previously separated area north of Hopkins Ave that had been flowing into the CSO regulator 042 service area.

** Separation of 022 West provided a separate sanitary sewer outlet for 96 acres of previously separated area that had been flowing into the CSO regulator 022 service area.

SRF LOAN FINANCING

To date, the City of Lansing has received 19 SRF loans for construction of the CSO projects totaling more than $156 million. The first loan was awarded in 1992. Since that

time 15 construction segments in Phases I, II, III and IV have been financed using SRF loans. The City of Lansing has satisfactorily met all project schedules since the inception of the project. The total CSO control program will be completed in 27 segments, with the final segment completed in the year 2019.

The cost of the total CSO program was projected to be approximately $176 million in the 1991 Project Plan (ENR Index 5000). The opinion of total project cost for the next five segments of construction covered in this Amendment No. 3 (Phase IV, Segments 4, 5 and Phase V, Segments 1-3) is $146.9 million (January 2007, ENR Index 7880). The opinion of eligible project cost for the next five segments of construction is $102.6 million (January 2007, ENR Index 7880).

NEED FOR PROJECT

The necessity of the CSO Control Program was documented in the 1991 Project Plan. Failure to implement the program would place the City of Lansing in non-compliance with the requirements of the NPDES permit. A copy of the current NPDES permit is attached as Appendix A. Basement flooding occurs in some homes located in combined sewer areas during wet weather periods. Several water quality problems in the Grand River and the Red Cedar River were documented by the Tri-County 208 Plan, which directly linked the problems with the 40 combined sewer overflows. CSO sewer separation is keeping the City in compliance with State and Federal law, and helping to mitigate basement flooding and water quality problems.

PROJECT PLAN AMENDMENT NO. 1 – MAY 1997

Project Plan Amendment No. 1 focused on the proposed work to occur at the Lansing Ave Pump Station (LAPS). It was proposed in that document that construction of the equalization basin should be delayed until later in the CSO program, and that LAPS should be replaced prior to basin construction. Design and construction of an equalization basin at the LAPS site was delayed to allow more sewer separation to be completed, and flow data collected to project the required basin volume. The storage would help protect the wastewater treatment plant from problems associated with peak

flow rates during design wet weather conditions. The City of Lansing is considering redirection of footing drain flows away from the sanitary sewer system. This is becoming more common across the country, and if implemented in Lansing, would reduce, or even eliminate the need for sanitary sewage equalization basins.

In the original project plan, the proposed project only included the construction of a new equalization basin. However, it became apparent that the first priority was to replace LAPS because:

- The existing station was over 55 years old.
- The wet well was too small.
- The available space within the station was inadequate.
- The station was unreliable.

LAPS is the most important pumping station in Lansing, and it is imperative that it operate efficiently and reliably. The new station became fully operational in November 1999.

PROJECT PLAN AMENDMENT NO. 2 – June 2002

The primary objectives of this Project Plan Amendment No. 2 were to update the progress of Lansing's CSO Control Program, provide information on any changes to the original Project Plan, provide supplemental detail of the next five work segments, and reiterate that sewer separation remains the recommended alternative for CSO Control in Lansing. The recommended alternative of separation was further supported by an independent review completed by Camp Dresser & McKee (CDM) in 1998. At the time of the review, it was even more cost effective to continue with the current program

The only modification to the Project Plan by Amendment No. 2 moved forward the downtown separation activity in the Capitol Loop area. This area was moved forward to reduce cost to the City for the separation activity by doing it in conjunction with MDOT and their street project.

PROJECT PLAN AMENDMENT NO. 3

The primary objectives of this Project Plan Amendment No. 3 are to update the progress of Lansing's CSO Control Program, provide supplemental detail of the next five work segments, incorporate recommendations of the 2020 Infrastructure Task Force bringing forward in the program some of the downtown projects, and reiterate that sewer separation remains the recommended alternative for CSO Control in Lansing.

ENVIRONMENTAL IMPACTS AND MITIGATING MEASURES

Projected environmental impacts and mitigating measures remain unchanged from those discussed in the original project plan and included in the 1992 Finding of No Significant Impacts (FONSI).

POPULATION AND ECONOMIC DATA

The population of Lansing has continued a slow decline since the 1991 Project Plan. The 2000 Census lists a population of 119,128 and an estimated 2003 population of 118,379. The median household income for the City of Lansing has increased to $34,833, and the per capita income to $17,924. (See Appendix D for details)

PROPOSED SCHEDULE FOR AMENDMENT NO. 3

Preliminary Draft to City and MDEQ:		04/03/07
Advertise Public hearing:		04/15/07
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City Council Resolution:	By	06/11/07
Final Document to City and DEQ:	By	06/28/07

CSO CONTROL PROGRESS UPDATE

Lansing will begin construction of its 16th CSO Segment (20th SRF Loan) in the spring of 2007, when Phase IV, Segment 4 separation gets underway. When CSO sewer separation construction began in 1992, there were 40 CSO structures and over 6,700 acres of combined sewer area in Lansing. By the end of the 2006 construction season, 16 CSO structures (40 percent) were abandoned, 3,106 acres were separated, and 443 acres of sanitary sewer area were redirected away from combined sewer areas, so that now all separate sanitary sewer areas discharge directly to the Lansing Wastewater Treatment Plant.

As of the end of the 2006 construction season, sewer separation is approximately 50% complete by area. The projects to date have been constructed with minimal problems, delays, and change orders. Regulator abandonment has occurred in accordance to the schedule required in the NPDES Permit. Following is a summary of CSO control progress, as of the end of the 2006 construction season:

CSO CONSTRUCTION

- Total 1991 combined sewer tributary area, acres: 7,167
- Combined area separated by the City of Lansing, acres: 2,880
- Combined area separated by others (Tollgate Drain): 226
- Separated sewer area redirected from combined sewer areas (Red Cedar Area M): 443
- Total area removed from contribution to overflow: 3,549 (50%)
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- Average annual overflow before project: 1.65 billion gallons
- Average annual overflow removed to date: 550 million gallons (33%)

BENEFITS OF CSO CONTROL/SEWER SEPARATION

- Clean rivers (public health protection, aquatic habitat improvement, recreational opportunities, and increased property values)
- Basement flooding/SSO mitigation
- Streetscape and Infrastructure enhancement (green space, tree preservation, road improvements, water main and other utility upgrades)
- Improved reliability / capacity of new Lansing Avenue Pump Station (LAPS)
- More efficient and reliable wastewater treatment plant operation
- Improvement sewage collection and transportation system
- Cost-effective and reliable sewer system maintenance
- Meets DEQ/USEPA requirements

PRIVATE INFLOW REMOVAL

- Properties inspected: 9,480
- Properties with inflow sources identified: 1,892
- Percentage of inflow properties where sources have been removed: 82%
- Percentage of all properties in compliance: 96%

Sewer separation has so far proved to be a very successful CSO control methodology for the City of Lansing. Other than the May 15-16, 2001, flooding event in the Tollgate Drain Area, there have been no cases of basement flooding in a completed CSO separation area due to wet weather flows. The May 2001 event has been shown to exceed a 100-year storm in and around the area where flooding occurred.

SUMMARY OF PROJECT PLAN CHANGES TO DATE

The Lansing CSO Control Program is essentially the same as what was presented in the original 1991 Final Project Plan. The construction of the first segment began in 1992, and the final segment will be completed in the year 2019. The following is a summary of the changes to the CSO Control Program since the 1991 Project Plan.

AMENDMENT NO. 1

Project Plan Supplement I

- Minor modifications to portions of the Red Cedar Area, resulting in no impact to the original cost-effectiveness analysis, as presented in the 1991 Project Plan.
- Early work proposed at the WWTP, allowing the City to further optimize WWTP operation and ultimately provide greater protection to the Grand River.
- Early separation of Pere Marquette Street in Subarea 020, to mitigate surface flooding and reduce the public health threat associated with basement flooding.

Project Plan Supplement II

- The Foster Avenue Interceptor project was divided into north and south sections at Michigan Avenue. The north section was constructed in Phase II, Segment 2. The construction was divided into two sections to allow an alternative route analysis for the northern section to minimize impact to trees, while allowing the south half to proceed.
- WWTP improvements were moved forward into Segment 1 from Segment 2 of Phase II, to provide improved plant operation earlier.
- Rehabilitation of the twin 90-inch portion of the express outlet to the Red Cedar River was moved into Segment 2 from Segments 3-5 of Phase II, due to concern for the pipe integrity under I-496.
- Separation of Red Cedar Area I was moved into Phase II, Segment 3 from Phase III, to reduce cost and minimize environmental impact by combining the I and J separation projects.
- Tollgate Drain (Red Cedar Area L) separation and Groesbeck Golf Course Stormwater Detention was moved back to Phase II, Segment 3 from Phase II,

Segment 2. This portion of the project was not ready to proceed under that time frame. This delay resulted in no violation of permit requirements.

- The proposed Red Cedar Area K trunk sewer route was revised to coincide with the proposed MDOT roadway reconstruction. The new route connects with the Foster Avenue Interceptor at Fairview and Grand River Avenues. Combining this work with the roadway reconstruction reduced the temporary impacts associated with construction activities.
- The main sanitary interceptor for CSO Subarea 018 was moved forward into Phase III, Segment 1, from Phase IV. This work did not require any work to be delayed from an earlier phase to a later phase. This interceptor is the primary sanitary outlet for Subarea 018, and its construction enabled smooth implementation of Subarea 018 separation. This interceptor allows existing and proposed new separate sanitary flows from the Lake Lansing Road area to flow directly to the WWTP, without mixing with combined sewage in CSO Subarea 018. Finally, the interceptor is deep enough to have allowed abandonment of the Lake Lansing Road Sanitary Pump Station, thereby eliminating energy and O&M costs associated with that station.
- The work at the Lansing Avenue Pump Station Site was revised to replace LAPS in Phase II, Segment 5, and construct an equalization basin at the same site in a subsequent Phase if needed.

AMENDMENT NO. 2

- The City of Lansing accelerated sewer separation in the Capitol Loop project area, as shown in Figure 1. The City partnered with MDOT and their road reconstruction and streetscaping project in the Capitol Loop area. By making construction of the road improvements and the sewer separation as part of the same project, the total CSO project cost and the amount of the SRF loan was reduced and the project area was disturbed only once. The sewer separation in the Capitol Loop area was included as part of Phase IV, Segment 1. This area was originally scheduled for CSO separation in Phases IV and VI. No work was delayed to accommodate this project acceleration.
- During preliminary design investigation it was discovered that a cross-connection existed between CSO Subareas 034 and 037. Sewer separation construction for Subarea 037 was scheduled to begin in 2002, as part of Phase III, Segment 4.

Subarea 034 is scheduled for separation in Phase V (2008 – 2015). The DEQ agreed that the cross-connection (CSO Overflow 034-A) may be left open to avoid increasing the risk of basement flooding in Subarea 034 during the interim period.

- The Moores Park Trunk Sewer (MPTS) provides the primary sewage outlet for CSO Subareas 034 and 037. Construction of MPTS was moved forward into Phase III, Segment 2 from Segments 3 – 5 to enable implementation of sewer separation in Subarea 037.
- Routing of the Northeast Sanitary Interceptor serving CSO Subarea 018 was changed slightly to reduce cost and improve constructability. Separation of a portion of High Street was included with the project to coordinate with proposed street reconstruction.
- As determined in Project Plan Amendment No. 1, the timing for the construction of the Lansing Avenue Equalization Basin would be delayed to a future phase to ensure that the basin would be sized appropriately. Subsequent flow data from ongoing and future sewer separation projects will be used to finalize the required size of the basin. The City is also considering pursuing disconnection of footing drains throughout the City's separate sanitary service area. If this were to occur, the basin would likely become unnecessary.
- Field investigations and design considerations have resulted in minor revisions to boundaries between various subareas, to accommodate actual flow directions, and other site conditions. These boundary changes fine tune the overall CSO program schedule, and do not negatively impact the project. The Capitol Loop project serves as an example of this.

In summary, all Amendment No. 2 changes have either resulted in no change, or acceleration of the CSO control program schedule, with no associated delays. The overall program work scope has also remained the same.

AMENDMENT NO. 3

The following items are included as changes since Amendment No. 2:

- In response to concerns about access to downtown raised by the business community in conjunction with the beginning of the Capitol Loop Project, the Mayor's Office established the 2020 Infrastructure Task Force. A major activity

of this group was to evaluate the segmentation of the downtown portion of the CSO Project Plan and its impact to the business community. The meetings, public input, and recommendations of the Task Force are contained within the November 2004 Final Report. The primary change recommended by the Task Force was to bring portions of the downtown projects forward in the schedule to allow smaller downtown projects. The smaller projects will have less impact on the businesses and allow for improved access during construction. The modifications to the schedule will still allow elimination of CSO regulators according to the schedule contained in the NPDES Permit. The Final Report was supported by City Council by passage of Resolution # 152 on April 11, 2005. The report was also was reviewed with DEQ with a final copy provided. Other changes resulting from the Downtown 2020 Task Force recommendations include:

- Subarea 045 was recombined into a single project in Phase IV, Segment 5 instead of split between Phase IV, Segments 3 and 5. This change was made to better control vehicle access to downtown.
- Subarea 020 was moved from Phase IV, Segment 3 to Phase IV, Segments 4. This change was also made to better control vehicle access to downtown.
- Subarea 013 West was moved ahead from Phase IV Segment 4 to Phase IV Segment 3 due to splitting the 013 North area into multiple project areas. In order to complete the 013 area during Phase IV this required moving 013 West forward one year.

Other changes since Amendment No. 2 include:

- Design and construction of the proposed LAPS sanitary equalization basin is further deferred to allow evaluation for the need of the basin and the required size. This will also allow the City to consider the need for the basin in conjunction with the Sanitary Sewer Overflow (SSO) Control Program. If the City implements the proposed footing drain removal program in separate sewer areas, a basin at LAPS will likely become unnecessary.
- Beginning with Phase III Segment 4, Subarea 037, the Lansing Board of Water & Light (BWL) began significant participation in the CSO projects to update aging

water and steam pipes. Design and construction of the CSO projects incorporated the BWL water, steam, and chiller lines to better coordinate the City's utility infrastructure while streets are disrupted for the sewer construction.

In summary, all changes since Amendment No. 2 have either resulted in no change, or acceleration of the CSO Control Program schedule to eliminate the CSO regulators, with no associated delays. The overall program work scope has remained the same.

CSO CONTROL ALTERNATIVES

The 1991 CSO Project Plan included three alternatives, complete separation, maximum retention, and partial retention. This section compares the alternatives based on findings and costs observed since the CDM peer review was completed in 1998.

COMBINED SEWAGE RETENTION

There are two options considered for retention, including the 1991 Project Plan criteria and one of the proposed options included in the 1998 CDM Report that allowed smaller basins. Both options are based on the sewer needs addressed in the 1991 Project Plan, which sought to provide a 10-year conveyance capacity for the combined retention areas. The cost of basins is based on the updated CSO Basin Cost Chart by CDM that incorporated several Michigan projects to establish the cost curve. This is included in Appendix B. Following is a description of each retention option.

Retention 1

Retention option 1 was prepared on the basis of the design storm used in the 1991 Project Plan which included the capture of the 1 year/1 hour storm and 30 minutes detention of the 10 year/1 hour storm. This design basis met the requirements of the NPDES Permit at the time the Project Plan was prepared.

Retention 2

Retention option 2 was prepared on the basis of the design storm proposed by CDM in their 1998 study of capture of the 1 year/1 hour storm with no additional detention. This option requires reduced storage capacity, and would result in more frequent discharge to the Grand River.

Other Considerations

Based on experience in the older combined sewer areas of the City, considerable rehabilitation of existing pipes may necessary to make them structurally sound and serviceable. No rehabilitation cost has been incorporated into the overall cost opinion for retention. Since the base cost opinion for retention is greater than separation, adding rehabilitation costs will only further support separation as the cost effective alternative.

Subarea 022 West and Capitol Loop were removed from consideration in all CSO alternatives, as sewer separation has been completed in these areas.

Since the cost of retention is found to be greater than the cost of separation, a life cycle cost comparison was not completed. As indicated in the 1991 Project Plan and again in the 1998 CDM Report, consideration for operational and replacement costs are greater with retention and would only make the retention options more costly.

Basin Sites

Property costs for siting of the basins have not been included. The original site for subareas 021, 022, 024, 046 was the park area at River Street and Lenawee, along the Grand River. This site is still available for a retention area.

The original site for subareas 008, 009, 012, 015, 019 was an area at the Wastewater Treatment Plant. This site is now occupied by the City for a biosolids storage facility. With limited space on the WWTP site, another alternative will be needed. One potential option would be the vacant area south of Willow Street on the General Motors property.

The original retention plan for subareas 032 and 034 called for two basins, with the 032 basin located on the old Diamond Reo property, and the 034 basin at Moores River Park. Subarea 034 is undergoing separation at this time. Since the 1991 Project Plan was completed, the Diamond Reo property has been developed and there may not be space available for a basin. If space is not available, an alternate location would have to be found which could require rerouting the basin to Moore's Park via large diameter sewers and enlarging the basin for 034.

Retention Status

Table 2 summarizes the status of CSO subareas originally considered for combined retention in the original 1991 CSO Control Project Plan.

TABLE 2

SUMMARY OF 1991 PROJECT PLAN COMBINED RETENTION SUBAREAS

CSO Subareas Considered for Retention in 1991 Plan	Original Plan Basin Size, million gallons	Current Status	Comment
013	4.2	Partially separated	▪ Retention not considered ▪ Only 34% not separated or under construction
008, 009, 012, 015, 019	7.0	Subareas remain combined	▪ Consider retention ▪ Original basin site at WWTP no longer available
021, 022, 024, 046	3.0	Subareas partially separated	▪ Consider retention ▪ Capitol Loop area completed ▪ Other separation beginning in 2007
033	2.0	Subarea remains combined	▪ Retention not considered ▪ GM closing site and will separate in the process
035, 036, 038	1.1	Subareas separated	
016, 017, 018	5.0	016, 017 remain combined. 018 90% separated	▪ Retention not considered ▪ 018 was only area to be retained and separation almost complete
041, 042, 043, 044	4.0	Subareas separated	
032, 034, 037	7.0	▪ Subarea 037 separated. ▪ 032 and 034 remain combined	▪ Consider retention for 032 & 034 ▪ Consider retention only for 032 ▪ 034 separation design has started ▪ 034 sanitary trunk sewer already constructed

SEWER SEPARATION

The sewer separation alternative is based on sewer length estimated for the projects in the 2020 Infrastructure Report of 2004, and is greater than included in the 1991 Project Plan. The updated separation cost opinions are also based on:

- actual bids for Phase IV, Segments 2 – 4
- projected costs included in the 2020 Segmentation Table
- cost projections incorporated in the 2003 Sanitary Sewer System Master Plan Study, including increased footing drain allowance in the remaining areas to be separated
- rehabilitation is now an eligible cost and is included in the separation option

Most areas remaining to be separated will allow for an increased footing drain flow rate of 7,200 gallons per parcel per day, which is based on findings and recommendations of the 2003 Master Plan Study. This allowance is expected to provide conveyance for a 25-year dormant season rainfall event.

ALTERNATIVE COST OPINIONS

Table 3 compares the cost effectiveness of separation and retention of the subareas still viable for retention consideration. The conceptual cost opinions are based on the January 2007 ENR index of 7880 and include only SRF eligible sewer activity. They do not include ineligible funding for additional road, sanitary, storm sewer activity, collection system rehabilitation funding for retention options, or Board of Water & Light (BWL) eligible or ineligible activity. Cost opinion back-up information is included in Appendix B.

TABLE 3

CONSTRUCTION COST COMPARISON - AREAS VIABLE FOR COMBINED RETENTION

CSO Subareas	Sewer Separation	Retention 1 1991 Project Plan Capture 1-yr, 1=hr 30 Min 10-yr, 1-hr	Retention 2 CDM 1998 Capture 1-yr, 1-hr storm
008, 009, 012, 015, 019	$54,819,000	$75,864,000	$65,588,000
021, 022, 024, 046	$69,609,000	$93,706,000	$90,939,000
032 and 034 (No 037)	$61,868,000	$86,715,000	$61,758,000
032 (No 037 or 034)	$19,714,000	$29,224,000	$22,841,000

Notes:

- The cost figures are based on SRF eligible activity and does not account for other ineligible activity related to sanitary sewers, storm sewers, and roads
- The cost figures do not incorporate any participation by the BWL, either eligible or ineligible.
- The retention options do not include the purchase of property if needed for locating it, special treatments if located in a park, nor sewer system rehabilitation.
- The costs are only for construction of the facilities and do not take into consideration long term operation, maintenance and replacement (OM&R) costs. OM&R costs tend to be higher for facilities and equipment than for sewers.

CONCLUSIONS / RECOMMENDATIONS

Sewer separation remains the most cost-effective alternative to control CSOs in Lansing. Although separation costs are higher in the downtown areas, experience to date has found that separation is feasible in the downtown areas, and remains more cost effective than providing combined sewer relief and CSO retention.

The combined retention alternative provides conveyance capacity for the 10-year rainfall rather than the 25-year event capacity provided in the sewer separation alternative. Based on this, the combined retention alternative would likely result in significantly more frequent basement flooding in retention areas.

It is recommended to continue sewer separation throughout the remaining combined sewer areas in Lansing.

REMAINING WORK

Through FY 2006 the City of Lansing has received 19 SRF loans for the construction of CSO Control projects. The terms of the SRF program require that an environmental review of segmented projects be performed by DEQ covering a five-year period. This amendment includes Phase IV, Segments 4 and 5 and Phase V, Segments 1-3.

Phase IV, Segment 4 CSO Subareas beginning construction in the spring of 2007 include:

- 013 Northwest – Turner and Carrier Street area
- 020 – Shiawassee Street, east of the Grand River
- 018 Southeast – Porter and Ballard Streets
- Downtown Area – including portions of Kalamazoo and Seymour Streets, and the 200 and 300 blocks of north Washington Square

The proposed work for the next five segments will complete all projects on or before the schedule proposed in the original Project Plan. No separation work is being delayed from an early phase to a later phase. The proposed retention basin at Lansing Ave Pump Station is being deferred from Phase IV to Phase VI as well as any additional work at the Wastewater Treatment Plant to allow for evaluation in conjunction with the SSO Control Program. Figure 1 shows completed, ongoing, and remaining work. Table 4 shows remaining work for Phases IV, V, and VI.

MONETARY COSTS

Table 4 also summarizes the project cost opinions for all future segments. The cost opinions include engineering and a 10 percent contingency for construction. The opinion of total project cost for the next five segments is $146.9 million. The opinion of eligible project cost for the five segments is $102.6 million. The opinion of total project cost for all remaining work is $240.8 million.

Cost to Average Residential User

The estimated monthly cost to a typical residential user for the next SRF loan (Phase IV, Segment 5) is $1.20.

TABLE 4

LANSING CSO CONTROL PROGRAM REMAINING WORK

Phase	Segment	Description	Project Period	Construction Start Year	Opinion of Eligible Project Cost ENR 7880 Million $
	4	Separation of Subareas 020, 018SE, 013NW, and Downtown	2005 - 2010	2007	26.0
	5	Separation of Subareas 045, 018SW, 013NE, 034A and Downtown	2006 - 2011	2008	19.1
V	1	Separation of Subareas 015N (014), 034B, and Downtown	2007 - 2012	2009	17.0
	2	Separation of Subareas 034C, 032 Trunk, and Downtown	2008 - 2013	2010	19.2
	3	Separation of Subareas 015S (014), 034D, and Downtown	2009 - 2014	2011	21.4
	4	Separation of Subareas 034E, 032 Local and Downtown	2010 - 2015	2012	16.6
	5	Separation of Subareas 009 (010) and Downtown	2011 – 2016	2013	16.7
VI	1 - 5	Separation of Subareas 008, 012 (011), 016, 017, 019, 026, and 033, and completion of downtown separation for Subareas 021, 22 E, 024, and 046 (047), Lansing Ave Retention Basin. Improvements to the WWTP	2012 – 2020	2014 – 2018	105.1

- The project period generally includes 1.5 years for design and DEQ approval, 2 years for construction and 1 year for PPC monitoring and report.
- The need for a basin and improvements at the WWTP will depend on flows from separated areas and the approach the City takes to address Sanitary Sewer Overflows.
- Construction costs include 10% contingency
- Eligible project costs have been approximated to include 70% of the total project cost

DESIGN CRITERIA

The final design drawings and construction permit for the Phase IV, Segment 4 projects have been approved and are on file with DEQ and City of Lansing.

The Draft Basis of Designs for the Phase IV, Segment 5 projects are on file with DEQ and the City of Lansing. Similar basis of design reports will be developed for each successive segment.

PUBLIC PARTICIPATION

A public hearing on the Draft CSO Project Plan Amendment No. 3 was held on Thursday, May 17, 2007, at 7:00 p.m. in the Lansing City Council Chambers to receive comments from interested parties. A notice of public hearing was published in the *Lansing State Journal* on Sunday, April 15, 2007 and the *Lansing City Pulse* on Monday April 16, 2007. Copies of the Draft CSO Project Plan Amendment No. 3 were made available for public inspection by the publication date of the notice of the public hearing. The period for receipt of written comments also ended on Thursday, May 17, 2007.

The following items are included in Appendix C:

- Public hearing and written comment advertisement and affidavit
- Hearing agenda
- Executive Summary handout
- List of attendees
- List of Speakers
- Transcript of hearing
- Responsiveness summary addressing questions and comments received
- Resolution adopting selected plan, passed by Lansing City Council

APPENDIX A

NPDES Permit

NPDES PERMIT

2002-2007

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

September 22, 2003

CERTIFIED MAIL: 7000-0520-0016-5015-0976

Ms. Debbie Miner, Clerk
City of Lansing
124 West Michigan Avenue
Lansing, Michigan 48933-1694

Dear Ms. Miner:

SUBJECT: National Pollutant Discharge Elimination System (NPDES); Permit No. MI0023400
Designated Name: Lansing WWTP

Your National Pollutant Discharge Elimination System (NPDES) Permit has been processed in accordance with appropriate state and federal regulations. It contains the requirements necessary for you to comply with state and federal water pollution control laws.

REVIEW THE PERMIT EFFLUENT LIMITS AND COMPLIANCE SCHEDULES CAREFULLY. These are subject to the criminal and civil enforcement provisions of both state and federal law. Permit violations are audited by the Michigan Department of Environmental Quality and the United States Environmental Protection Agency and may appear in a published quarterly noncompliance report made available to agencies and the public.

Your monitoring and reporting responsibilities must be complied with in accordance with this permit. If applicable, Discharge Monitoring Report forms will be transmitted to you in the near future. These reports are to be submitted monthly or otherwise as required by your NPDES permit.

Any reports, notifications, or questions regarding the attached permit or NPDES program should be directed to the following address:

Mr. Tim Benton, District Supervisor
Lansing District Office, Water Division, DEQ
Constitution Hall, 4th Floor North
525 West Allegan
P.O. Box 30242
Lansing, Michigan 48909
Telephone: 517-335-4598, Fax: 517-241-3571

Sincerely,

D. Steven Eldredge

D. Steven Eldredge
Chief, Surface Water Permits Section
Water Division
517-373-8088

Attachment: Permit

cc: EPA-Region 5
208 Agency – Tri-County Regional Planning Commission
Mr. Brian Ross, Superintendent, Wastewater Treatment Facility
Mr. Chad Gamble, P.E., Assistant City Engineer, City of Lansing

Mr. Paul Koleda, Environmental Assistance Division
Mr. Tim Benton, Lansing District Supervisor, Water Division (2)
Mr. Chuck Bennett, Lansing District Office, Water Division
PCS Unit, Water Division
Point Source Studies (Grand Rapids District Office), Water Division
Files

PERMIT NO. MI0023400

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq; the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18,

City of Lansing
124 West Michigan Avenue
Lansing, Michigan 48917

is authorized to discharge from the City of Lansing, Lansing WWTP located at

1625 Sunset Avenue
Lansing, Michigan 48917

designated as Lansing WWTP

to the receiving water named the Grand River in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

Unless specified otherwise, all contact with the Michigan Department of Environmental Quality (the "Department") required by this permit shall be made to the Lansing District Supervisor of the Water Division. The Lansing District Office is located at Constitution Hall, 525 W. Allegan, 4th Floor-North, P.O. Box 30242, Lansing, Michigan 48909, telephone: 517-335-4598, fax: 517-241-3571. Unless specified otherwise, all Department approvals specified in this permit shall be by the District Supervisor.

In accordance with R323.2416 of the Michigan Administrative Code, the permittee shall make payment of an annual biosolids land application fee to the Department. In response to the Department's annual notice, the permittee shall submit the fee, which shall be postmarked no later than January 31 of each year.

In accordance with Section 324.3118 of the Michigan Act, the permittee shall make payment of an annual storm water fee to the Department. In response to the Department's annual notice, the permittee shall submit the fee, which shall be postmarked no later than March 15 of each year.

Any person who is aggrieved by this permit may file a sworn petition with the Office of Administrative Hearings of the Michigan Department of Environmental Quality, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department may reject any petition filed more than 60 days after issuance as being untimely.

This permit is based on a complete application submitted on March 28, 2002.

This permit takes effect on January 1, 2004. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules. On its effective date this permit shall supersede NPDES Permit No. MI0023400, expiring October 1, 2002.

This permit and the authorization to discharge shall expire at midnight, October 1, 2007. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information and forms as are required by the Department by April 4, 2007.

Issued September 19, 2003

Daniel D. Dell ACTING

D. Steven Eldredge
Chief, Surface Water Permits Section
Water Division

PART I

Section A. Limitations and Monitoring Requirements

1. Final Effluent Limitations, Monitoring Point 001A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge treated municipal wastewater from Monitoring Point 001A through Outfall 001. Outfall 001 discharges to Grand River. Such discharge shall be limited and monitored by the permittee as specified below.

	Maximum Limits for Quantity or Loading				Maximum Limits for Quality or Concentration					
Parameter	Monthly	7-Day	Daily	Units	Monthly	7-Day	Daily	Units	Frequency of Analysis	Sample Type
Flow	(report)	—	(report)	MGD	—	—	—	—	Daily	Report Total Daily Flow
Carbonaceous Biochemical Oxygen Demand (CBOD5)										
5/1-11/30	1200	2900	—	lbs/day	4	—	10	mg/l	5/Week	24-Hr Composite
12/1-3/31	6700	10000	—	lbs/day	23	—	35	mg/l	5/Week	24-Hr Composite
4/1-4/30	7300	12000		lbs/day	25	40	—	mg/l	5/Week	24-Hr Composite
Total Suspended Solids										
5/1-11/30	5800	8800	—	lbs/day	20	30	—	mg/l	5/Week	24-Hr Composite
12/1-4/30	8800	13000	—	lbs/day	30	45	—	mg/l	5/Week	24-Hr Composite
Ammonia Nitrogen (as N)										
5/1-10/30	150	580	—	lbs/day	0.5	—	2	mg/l	5/Week	24-Hr Composite
11/1-11/30	—	1500	—	lbs/day	—	—	5	mg/l	5/Week	24-Hr Composite
12/1-3/31	1800	—	—	lbs/day	6	—	—	mg/l	5/Week	24-Hr Composite
4/1-4/30	2900	—	—	lbs/day	10	—	—	mg/l	5/Week	24-Hr Composite
Total Phosphorus (as P)	—	—	—	—	1.0	—	—	mg/l	5/Week	24-Hr Composite
Fecal Coliform Bacteria	—	—	—	—	200	400	—	cts/100 ml	5/Week	Grab
Total Mercury										
Effective Date until 1/1/2005		—	—	—	(report)	—	—	ng/l	Quarterly	Grab
Beginning 1/1/2005	0.0088	—	—	lbs/day	30	—	—	ng/l	Monthly	Grab
					Minimum Monthly					
$CBOD_5$ Minimum % Removal (4/1 – 4/30)		—	—		85	—	—	%	Monthly	Calculation
Total Suspended Solids Minimum % Removal (12/1 – 4/30)					85	—	—	%	Monthly	Calculation
					Minimum Daily		Maximum Daily			
pH	—	—	—	—	6.5	—	9.0	S.U.	5/Week	Grab
Dissolved Oxygen										
4/1-8/31	—	—	—	—	5.0	—	—	mg/l	5/Week	Grab
9/1-3/31	—	—	—	—	6.0	—	—	mg/l	5/Week	Grab

The following design flow was used in determining the above limitations, but is not to be considered a limitation or actual capacity: 35 MGD

PART I

Section A. Limitations and Monitoring Requirements

a. Narrative Standard
The receiving water shall contain no unnatural turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge.

b. Sampling Locations
Samples for Total Suspended Solids, Ammonia Nitrogen, Total Phosphorus, $CBOD_5$, Dissolved Oxygen, Fecal Coliform Bacteria, and pH shall be taken after disinfection. The Department may approve alternate sampling locations which are demonstrated by the permittee to be representative of the effluent.

c. Ultraviolet Disinfection
It is understood that ultraviolet light will be used to achieve compliance with the fecal coliform limitations. If chemical oxidants such as chlorine compounds are used, then an additional maximum daily effluent limitation of 0.038 mg/l of Total Residual Oxidant shall apply. Such use may be approved by the Department, and testing and analyses shall be performed in accordance with the conditions of approval.

d. Percent Removal Requirements
These requirements shall be calculated based on the monthly (30-day) effluent $CBOD_5$ and Total Suspended Solids concentrations and the monthly influent concentrations for approximately the same period.

e. Effluent Limitation for Total Mercury
The final limit for total mercury is the Level Currently Achievable (LCA) based on a multiple discharger variance from the water quality-based effluent limit of 1.3 ng/l, pursuant to Rule 323.1103(9) of the Water Quality Standards. Compliance with the LCA shall be determined as a running 12-month arithmetic mean. The 12-month arithmetic mean shall be determined by adding the present monthly average result to the preceding 11 monthly average results then dividing the sum by 12. If the running 12-month arithmetic mean for any month is less than the LCA, the permittee will be considered to be in compliance for total mercury for that month, provided the permittee is also in full compliance with the Pollutant Minimization Program for Total Mercury, set forth in Part I.A.5. For periods when quarterly sampling is required, quarterly data may be substituted as three months of data when calculating the running 12 month average. Additional sampling may be conducted at the discretion of the permittee.

The permittee may choose to demonstrate that an alternate site-specific LCA is appropriate and request a permit modification. Such request and supporting documentation shall be submitted in writing to the Department. Supporting documentation shall include a minimum of 12 samples taken over a 12 month period in accordance with EPA Method 1631. Upon approval, this permit may be modified in accordance with applicable laws and rules to incorporate the alternate site-specific LCA as the effluent limitation for total mercury.

f. Total Mercury Testing Requirements
The analytical protocol for total mercury shall be in accordance with EPA Method 1631, Revision E, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry". The quantification level for total mercury shall be 0.5 ng/l, unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination.

The use of clean technique sampling procedures is strongly recommended. Guidance for clean technique sampling is contained in: EPA Method 1669, *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (Sampling Guidance)*, EPA-821-R96-001, July 1996. Information and data documenting the permittee's sampling and analytical protocols and data acceptability shall be submitted to the Department upon request.

PART I

Section A. Limitations and Monitoring Requirements

2. Retention/Equalization Treatment Basin Discharge Authorization, Monitoring Points 002A and 003A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge treated combined sewage from retention basin Monitoring Points 002A and 003A through Outfalls 002 and 003 when flows reach the rated design capacity of 35 MGD and flows at the headworks of the treatment plant exceed 50 MGD during a rainfall, snowmelt, or precipitation event. Such discharge shall be limited and monitored by the permittee as specified below:

	Maximum Limits for Quantity or Loading				Maximum Limits for Quality or Concentration				Frequency	Sample
Parameter	Monthly	7-Day	Daily	Units	Monthly	7-Day	Daily	Units	of Analysis	Type
Flow	(report)	—	(report)	MGD	—	—	—	—	Daily	Report Total Daily Flow
Biochemical Oxygen Demand (BOD5)		—	—		(report)	—	(report)	mg/l	Daily	Flow Proportioned
Total Suspended Solids		—	—	—	(report)	—	(report)	mg/l	Daily	Flow Proportioned
Ammonia Nitrogen (as N)		—	—	—	(report)	—	(report)	mg/l	Daily	Flow Proportioned
Total Phosphorus (as P)		—	—	—	(report)	—	(report)	mg/l	Daily	Flow Proportioned
Fecal Coliform Bacteria		—	—	—	200	—	400	cts/100 ml	Daily	Grab
Total Residual Chlorine		—	—	—	—	—	(report)	mg/l	Daily	Grab
					Minimum Daily		Maximum Daily			
pH	—	—	—	—	(report)	—	(report)	S.U.	Daily	Grab
Dissolved Oxygen	—	—	—	—	(report)	—	—	mg/l	Daily	Grab

a. Retention Basin Monitoring and Reporting
The permittee shall monitor retention basin performance and report the monitoring consistent with the requirements of Part II.C.2. of this permit. The permittee shall supply the results of each sample taken during each discharge period.

b. Retention Treatment Basin Dewatering
The retention treatment basin shall be promptly dewatered as soon as possible following the need to divert flow to the basin and shall be maintained in readiness for use. The discharge of sludge or residual accumulations from the basin to the surface waters is prohibited. These sludges shall be promptly removed and disposed in accordance with procedures approved by the Department.

c. Total Residual Chlorine
The permittee shall minimize the discharge of Total Residual Chlorine, with the goal of achieving a daily average of 1 mg/l, or less.

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Effluent sampling shall be by flow proportioned composite sampler. The average of all discrete sample results shall be calculated for each calendar day of discharge. The highest daily average for the calendar month shall be reported as the maximum daily concentration. The average of the daily averages shall be reported as the monthly concentration.

For Fecal Coliform Bacteria, the "daily maximum" shall be the geometric mean of all samples on any discharge day, provided that three (3) or more samples are collected. The Fecal Coliform Bacteria "monthly average" shall be the geometric mean of all samples collected during the month, provided that five (5) or more samples are collected. The goal of the effluent sampling program is to collect at least three samples during each discharge event, and samples shall be collected at shorter intervals at the onset of the event, if the permittee estimates that the event duration may be less than six hours.

For purposes of reporting on a discharge event which lasts less than 24 hours, but occurs during two calendar days, the pollutant loadings and concentrations for the event shall be reported as daily values on the day when the majority of the discharge occurred.

d. Operation and Maintenance Plan

The permittee shall assure that discharges only occur in response to rainfall (or snowmelt) events and cease soon thereafter. Any rehabilitation and maintenance needs shall be addressed to ensure adequate sewer capacity and functionality. This may be accomplished through continued implementation of the approved Operation and Maintenance Plan.

e. Discharge Notification

In the event of a retention treatment basin discharge, the permittee shall, in accordance with notification procedures approved by the Department, notify the Department, the local health departments, a daily newspaper of general circulation in the county in which the permittee is located, and a daily newspaper of general circulation in the county or counties in which the municipalities whose waters may be affected by the discharge are located. Notification that the discharge is occurring shall be made promptly after the discharge begins. After the conclusion of the discharge, the permittee shall provide written notification to the above parties of the following:

1) the amount of discharge as measured in accordance with the procedures approved by the Department,

2) the reason for the discharge,

3) the time the discharge began and ended as measured in accordance with the procedures approved by the Department, and

4) verification that the permittee is in compliance with the retention treatment basin requirements of this permit. If such verification cannot be made, an explanation shall be provided detailing the reasons why the permittee is not in compliance with the combined sewer overflow requirements of this permit.

The permittee shall also annually contact municipalities whose waters may be affected by the permittee's discharge of combined sewage, and if those municipalities wish to be notified in the same manner as specified above, the permittee shall provide such notification. Such notification shall also include a daily newspaper in the county of the affected municipality.

f. Testing for Escherichia coli

Each time a combined sewer overflow discharge occurs, the permittee shall test the affected waters for Escherichia coli to assess the risk to the public health as a result of the discharge and shall provide the test results to the affected local county health departments and to the Department. The testing shall be done at locations specified by each affected local county health department but shall not exceed 10 tests for each separate discharge event. The affected local county health department may waive this testing requirement if it determines that such testing is not needed to assess the risk to the public health as a result of the discharge event.

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g. Disconnection of Eaves Troughs and Roof Downspouts
The permittee shall eliminate direct connections of eaves troughs and roof downspouts to the sewer system throughout the tributary service area tributary to combined sewer overflow outfalls. This requirement shall be completed within 1 year after the effective date of this permit for residential property, and within 5 years after the effective date of this permit for commercial and industrial properties. This requirement does not apply if the permittee demonstrates that the disconnection of eaves troughs and roof downspouts is not a cost-effective means of reducing the frequency or duration of combined sewer overflows or of maintaining compliance with this permit. Such a demonstration and supporting documentation shall be submitted to the Department for approval.

h. New Wastewater Flows
Increased levels of discharge of sanitary sewage from the retention treatment basin are prohibited unless:

1) these increased discharges are the result of new sanitary wastewater flows which, on the basis of sound professional judgment, are within design peak dry weather transportation capacity; or

2) the permittee has officially adopted and is timely implementing a definite program, satisfactory to the Department, leading to the construction and operation of necessary collection, transportation or treatment devices.

3. Discharges from Other Outfalls

All discharges from outfalls 004, 005, 006 are prohibited, except in accordance with Part II.C.9. of this permit.

004 – Lansing Avenue Pump Station at Grand River
005 – Tecumseh Park Pump Station at Grand River
006 – Frances Park Pump Station at Grand River

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4. Additional Monitoring Requirements.

As a condition of this permit, the permittee shall monitor the discharge from monitoring point 001A for the constituents listed below. This monitoring is an application requirement of 40 CFR 122.21(j), effective December 2, 1999. Testing shall be conducted in a low flow month in 2003/2004, May, 2005, March, 2006, and October, 2006. Grab samples shall be taken for total mercury, available cyanide, total phenols, and parameters listed under Volatile Organic Compounds. For all other parameters, 24-hour composite samples shall be taken.

Test species for whole effluent toxicity monitoring shall include fathead minnow **and** *Ceriodaphnia dubia.* Testing and reporting procedures shall follow procedures contained in EPA/600/4-91/002, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms". When the effluent ammonia nitrogen (as N) concentration is greater than 3 mg/l, the pH of the toxicity test shall be maintained at a pH of 8 Standard Units. Acute and chronic toxicity data shall be included in the reporting for the toxicity test results. Toxicity test data acceptability is contingent upon the validation of the test method by the testing laboratory. Such validation shall be submitted to the Department upon request.

The analytical protocol for total mercury shall be in accordance with EPA Method 1631, Revision E, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry". The use of clean technique sampling procedures is strongly recommended. Guidance for clean technique sampling is contained in: EPA Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (Sampling Guidance), EPA-821-R96-001, July 1996. Information and data documenting the permittee's sampling and analytical protocols and data acceptability shall be submitted to the Department upon request.

The results of such monitoring shall be submitted with the application for reissuance (see the cover page of this permit for the application due date). The permittee shall notify the Department within 14 days of completing the monitoring for each month specified above in accordance with Part II.C.5. Additional reporting requirements are specified in Part II.C.10. The permittee shall report to the Department any whole effluent toxicity test results greater than 1.0 TUa or 1.0 TUc within five (5) days of becoming aware of the result. If, upon review of the analysis, it is determined that additional requirements are needed to protect the receiving waters in accordance with applicable water quality standards, the permit may then be modified by the Department in accordance with applicable laws and rules.

Whole Effluent Toxicity
acute toxicity
chronic toxicity

Hardness
calcium carbonate

Metals (Total Recoverable), Cyanide and Total Phenols (Quantification levels in parentheses)

antimony (1 µg/l)	arsenic (1 µg/l)	beryllium (1 µg/l)
cadmium (0.2 µg/l)	chromium (5 µg/l)	copper (1 µg/l)
lead (1µg/l)	nickel (5 µg/l)	selenium (1 µg/l)
silver (0.5 µg/l)	thallium (1 µg/l)	zinc (5 µg/l)

mercury (0.5 ng/l) using Method 1631 Revision E
cyanide available (2 µg/l)
total phenolic compounds

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Volatile Organic Compounds

acrolein	acrylonitrile	benzene
bromoform	carbon tetrachloride	chlorobenzene
chlorodibromomethane	chloroethane	2-chloroethylvinyl ether
chloroform	dichlorobromomethane	1,1-dichloroethane
1,2-dichloroethane	trans-1,2-dichloroethylene	1,1-dichloroethylene
1,2-dichloropropane	1,3-dichloropropylene	ethylbenzene
methyl bromide	methyl chloride	methylene chloride
1,1,2,2,-tetrachloroethane	tetrachloroethylene	toluene
1,1,1-trichloroethane	1,1,2-trichloroethane	trichloroethylene
vinyl chloride		

Acid-Extractable Compounds

p-chloro-m-creso	2-chlorophenol	2,4-dichlorophenol
2,4-dimethylphenol	4,6-dinitro-o-cresol	2,4-dinitrophenol
2-nitrophenol	4-nitrophenol	pentachlorophenol
phenol	2,4,6-trichlorophenol	

Base/Neutral Compounds

acenaphthene	acenaphthylene	anthracene
benzidine	benzo(a)anthracene	benzo(a)pyrene
3,4-benzofluoranthene	benzo(ghi)perylene	benzo(k)fluoranthene
bis(2-chloroethoxy)methane	bis(2-chloroethyl)ether	bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)phthalate	4-bromophenyl phenyl ether	butyl benzyl phthalate
2-chloronaphthalene	4-chlorophenyl phenyl ether	chrysene
di-n-butyl phthalate	di-n-octyl phthalate	dibenzo(a,h)anthracene
1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene
3,3'-dichlorobenzidine	diethyl phthalate	dimethyl phthalate
2,4-dinitrotoluene	2,6-dinitrotoluene	1,2-diphenylhydrazine
fluoranthene	fluorine	hexachlorobenzene
hexachlorobutadiene	hexachlorocyclo-pentadiene	hexachloroethane
indeno(1,2,3-cd)pyrene	isophorone	naphthalene
nitrobenzene	n-nitrosodi-n-propylamine	n-nitrosodimethylamine
n-nitrosodiphenylamine	phenanthrene	pyrene
1,2,4-trichlorobenzene		

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5. Pollutant Minimization Program for Total Mercury

The goal of the Pollutant Minimization Program is to maintain the effluent concentration of total mercury at or below 1.3 ng/l. The permittee shall continue to implement the approved Mercury Minimization Program, and modifications thereto, to proceed toward the goal. The Pollutant Minimization Program includes the following:

a. an annual review and semi-annual monitoring of potential sources of mercury entering the wastewater collection system;

b. a program for quarterly monitoring of influent and periodic monitoring of sludge for mercury; and

c. implementation of reasonable cost-effective control measures when sources of mercury are discovered. Factors to be considered include significance of sources, economic considerations, and technical and treatability considerations.

On or before May 1 of each year, the permittee shall submit a status report for the previous calendar year to the Department that includes 1) the monitoring results for the previous year, 2) an updated list of potential mercury sources, and 3) a summary of all actions taken to reduce or eliminate identified sources of mercury.

Any information generated as a result of the Pollutant Minimization Program set forth in this permit may be used to support a request to modify the approved program or to demonstrate that the Pollutant Minimization Program requirement has been completed satisfactorily.

A request for modification of the approved program and supporting documentation shall be submitted in writing to the Department for review and approval. The Department may approve modifications to the approved program (approval of a program modification does not require a permit modification).

The permittee may choose to demonstrate that the program is complete and request removal of the program from the permit. Such request and supporting documentation demonstrating that the goal is being achieved shall be submitted in writing to the Department. If the Department determines that the request is approvable, this permit may be modified in accordance with applicable laws and rules to remove this requirement.

This permit may be modified in accordance with applicable laws and rules to include additional mercury conditions and/or limitations as necessary.

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6. Discharges From Combined Sewer Systems

a. Limited Discharge Authorization

The permittee is required to utilize, to the maximum extent practicable, available sewerage system transportation capabilities for the delivery of combined sewage to treatment facilities. For an interim period during which the Final Combined Sewer Overflow Control Program is to be implemented, the permittee is authorized to discharge combined sewage flows in response to rainfall or snowmelt conditions when total available transportation and treatment capabilities are exceeded from the monitoring points and locations listed below:

OUTFALL	LOCATION	RECEIVING WATERS
007	Harton Street Equalization Basin	Red Cedar River
008	NW Wastewater Treatment Plant	Grand River
009	Martin L King Jr. Boulevard	Grand River
010	Lansing Avenue at Greenwood	Grand River
011	Roosevelt at Cypress	Grand River
012	Knollwood at Cypress	Grand River
013	N Grand River Avenue at Riverside	Grand River
014	Willow Street at Pine Street	Grand River
015	Willow Street at Walnut Street	Grand River
016	North Grand River Avenue	Grand River
017	Turner Street at Beaver Street	Grand River
018	Center Street at Maple Street	Grand River
019	Oakland Avenue at Grand Avenue	Grand River
020	Larch Street at Shiawassee Street	Grand River
021	Shiawassee Street at Washington Square	Grand River
022	Ottawa Street at Grand Street	Grand River
023	Cedar Street North of Michigan	Grand River
024	Lenawee Street East of Grand Avenue	Grand River
025	Hillsdale Street East of Beech Street	Grand River
026	Hazel Street at Pennsylvania Avenue	Red Cedar River
032	Wilson Street at Herbert Street	Red Cedar River
033	Townsend Street at Elm Street	Grand River
034	Moores River Drive at Moores Park (includes Mt Hope at Pattengill – 34a)	Grand River
037	Moores River Drive West of Pettis	Grand River
044	Detroit Street North of Michigan	Red Cedar River
045	Larch Street at Saginaw Avenue	Grand River
046	Washtenaw Avenue at Grand Avenue	Grand River
047	Washtenaw Avenue East of Capitol	Grand River

provided, however, that nothing in this paragraph shall be construed to limit the state of Michigan's ability to recover damages resulting from such discharges.

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In accordance with the permittee's Final Combined Sewer Overflow Control Program approved on March 9, 1992, the combined sewer overflow discharges are authorized through the completion of six construction phases. After the completion of each phase, the discharge from those outfalls listed in the specific construction phase shall be prohibited. The compliance schedule by construction phase is as follows:

CONSTRUCTION PHASE	OUTFALLS	COMPLETION DATE
I	028, 029, 030, 031, 038, 041, 043	(COMPLETED)
II	036	(COMPLETED)
III	007, 037, 044 042	December 31, 2004 (COMPLETED July 23, 2002)
IV	013, 018, 020, 023, 025, 045	December 31, 2009
V	009. 010, 014, 015, 032, 034	December 31, 2014
VI	008, 011, 012, 016, 017, 019 021, 022, 024, 026, 033, 046, 047	December 31, 2019

b. Interim Combined Sewer Overflow Control Program

1) The permittee shall place the wastewater collection system under the supervision of a qualified Operations and Maintenance manager who shall serve as the contact person for the Department regarding combined sewer discharges. The permittee may replace the manager at any time and shall notify the Department within ten days after the replacement.

2) In the event of a combined sewer overflow discharge, the permittee shall, in accordance with notification procedures approved by the Department, notify the Department, the local health departments, a daily newspaper of general circulation in the county in which the permittee is located, and a daily newspaper of general circulation in the county or counties in which the municipalities whose waters may be affected by the discharge are located. Notification that the discharge is occurring shall be made promptly after the discharge begins. After the conclusion of the discharge, the permittee shall provide written notification to the above parties of the following:

a) the amount of discharge as measured in accordance with the procedures approved by the Department,

b) the reason for the discharge,

c) the time the discharge began and ended as measured in accordance with the procedures approved by the Department, and

d) verification that the permittee is in compliance with the combined sewer overflow requirements of this permit. If such verification cannot be made, an explanation shall be provided detailing the reasons why the permittee is not in compliance with the combined sewer overflow requirements of this permit.

The permittee shall also annually contact municipalities whose waters may be affected by the permittee's discharge of combined sewage, and if those municipalities wish to be notified in the same manner as specified above, the permittee shall provide such notification. Such notification shall also include a daily newspaper in the county of the affected municipality.

3) Each time a combined sewer overflow discharge occurs, the permittee shall test the affected waters for Escherichia coli to assess the risk to the public health as a result of the discharge and shall provide the test results to the affected local county health departments. The testing shall be done at locations specified by each affected local county health department but shall not exceed 10 tests for each separate discharge event. The affected local county health department may waive this testing requirement if it determines that such testing is not needed to assess the risk to the public health as a result of the discharge event.

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4) The permittee shall assure that discharges only occur in response to rainfall (or snowmelt) events and cease soon thereafter. This may be accomplished through continued implementation of the approved Operation and Maintenance Plan.

5) The permittee shall address any rehabilitation and maintenance needs to ensure adequate sewer capacity and functionality. This may be accomplished through continued implementation of the approved Interim Combined Sewer Overflow Report.

6) The permittee shall a) document the rainfall, the frequency and the duration of discharge events, b) estimate the volume and quality of discharges, and c) determine the potential discharge of pollutants from significant industrial users. The data collected shall be submitted monthly to the Department. This may be accomplished through continued implementation of the approved Long Term Monitoring Program.

c. Disconnection of Eaves Troughs and Roof Downspouts

The permittee shall eliminate direct connections of eaves troughs and roof downspouts to the sewer system throughout the service area tributary to combined sewer overflow outfalls. This requirement shall be completed within 1 year after the effective date of this permit for residential property, and within 5 years after the effective date of this permit for commercial and industrial properties. This requirement does not apply if the permittee demonstrates that the disconnection of eaves troughs and roof downspouts is not a cost-effective means of reducing the frequency or duration of combined sewer overflows or of maintaining compliance with this permit. Such a demonstration and supporting documentation shall be submitted to the Department for approval.

d. Final Combined Sewer Overflow Control Program

The permittee has submitted a Final Combined Sewer Overflow Control Program (Control Program) to provide for the elimination or adequate treatment of combined sewage discharges containing raw sewage, to comply with the Water Quality Standards at times of discharge. The Control Program was approved on March 9, 1992.

The implementation and completion of the Control Program is a necessary and essential requirement of this permit. The permittee shall complete the following activities consistent with the approved Control Program:

(1) On or before January 1, 1993(COMPLETED), the permittee shall commence design of Phase II of the Final Combined Sewer Overflow Program. During Phase II the permittee shall:

(a) Complete sewer separation in subarea 041 (Red Cedar Area) and construct Regent Relief Sewer.
(b) Construct the Harton Street storm water pumping station and the Kalamazoo storm relief sewer.
(c) Construct the Foster Avenue sanitary interceptor and the Groesbeck storm retention facility.
(d) Complete sewer separation in the Red Cedar areas of L and J
(e) Construct an express outlet and the Clippert Street storm system within subarea 042.
(f) Begin sewer separation in the western portion of subarea 022, north of the Moores River area.
(g) Construct the Lansing Avenue pump station.
(h) Begin wastewater treatment plant improvements as identified in the approved control program.
(i) Begin sewer separation in subarea 020 (Pere Marquette area).

On or before December 1, 1999, (COMPLETED) the permittee shall have completed all construction projects of Phase II of the Final CSO Control Program.

(2) On or before January 1, 1998, (COMPLETED) the permittee shall commence design of Phase III of the Final CSO Control Program. During Phase III the permittee shall:

(a) Complete separation of the combined sewer system tributary to overflow structures 036, 037, and 044.

(b) Complete separation of subarea 042 as associated with the Red Cedar areas G, H, I, and K

(c) Begin partial sewer separation of subareas 013 and 034

(d) Continue wastewater treatment plant improvements in accordance with Final CSO Control Program.

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On or before December 31, 2004, the permittee shall have completed all construction projects of Phase III of the Final CSO Control Program.

(3) On or before January 1, 2003, (COMMENCED) the permittee shall commence design of Phase IV of the Final CSO Control Program. During Phase IV the permittee shall:

(a) Complete separation of the combined sewer system tributary to overflow structures 013 and 018.

(b) Complete sewer separation of sub areas 020, 023, 025, and 045.

On or before December 31, 2009, the permittee shall have completed all construction projects of Phase IV of the Final CSO Control Program.

(4) On or before January 1, 2008, the permittee shall commence design of Phase V of the Final CSO Control Program. During Phase V the permittee shall:

(a) Construct Lansing Avenue Equalization Basin, if required to achieve Final CSO Objectives.

(b) Complete separation of the combined sewers in sub areas 009, 010, 014, 015, and 032.

(c) Complete combined sewer separation of subarea 034 begun in Phase III.

(d) Complete improvements to the central interceptor near Lansing Avenue pump station.

(d) Complete improvements to the wastewater treatment plant.

(e) Begin separation of combined sewers in designated portions of areas D and G.

On or before December 31, 2014, the permittee shall have completed all construction projects of Phase V of the Final CSO Control Program.

(5) On or before January 1, 2013, the permittee shall commence design of Phase VI of the Final CSO Control Program. During Phase VI the permittee shall:

(a) Complete combined sewer separation in sub areas 008, 012, 016, 017, and 019, including construction of sanitary sewers, storm sewers, and storm water relief sewers.

(b) Complete combined sewer separation of sewers tributary to subareas 021, 022, 024, and 046.

(c) Complete combined sewer separation in subaseas 026 and 033.

On or before December 31, 2019, the permittee shall have completed all construction projects of Phase VI of the Final CSO Control Program.

Following implementation of any phase of the approved Control Program, the Control Program may be reevaluated by the permittee or the Department. This permit may be modified in accordance with applicable laws and rules, to incorporate revisions necessary to conform to pertinent rules or laws, or as necessary to address prevailing situations.

e. New Wastewater Flows

Increased levels of discharge of sanitary sewage from the Combined Sewer Overflow outfalls listed in item a., above, are prohibited unless:

1) these increased discharges are the result of new sanitary wastewater flows which, on the basis of sound professional judgment, are within design peak dry weather transportation capacity; or

2) the permittee has officially adopted and is timely implementing a definite program, satisfactory to the Department, leading to the construction and operation of necessary collection, transportation or treatment devices.

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7. Storm Water Pollution Prevention Plan

The permittee is authorized to discharge storm water associated with industrial activities as defined in 40 CFR 122.26(b)(14). These storm water discharges shall be controlled in accordance with the requirements of this special condition. The permittee has developed and implemented a Storm Water Pollution Prevention Plan (plan). The permittee shall continue implementation of the plan for maximum control of significant materials (as defined in Part I.A.7.i.) so that storm water discharges will not cause a violation of the Water Quality Standards. The plan shall be routinely reviewed and updated in accordance with the requirements of this Special Condition.

a. Source Identification

To identify potential sources of significant materials that can enter storm water and subsequently be discharged from the facility, the plan shall, at a minimum, include the following:

1) A site map identifying the following: buildings and other permanent structures; storage or disposal areas for significant materials; secondary containment structures; storm water discharge outfalls (numbered for reference); location of storm water inlets contributing to each outfall; location of NPDES permitted discharges other than storm water; outlines of the drainage areas contributing to each outfall; structural runoff controls or storm water treatment facilities; areas of vegetation; areas of exposed and/or erodible soils; impervious surfaces (roofs, asphalt, concrete); name and location of receiving water(s); and areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the Michigan Act.

2) A list of all significant materials that could enter storm water. For each material listed, the plan shall include the following descriptions:

a) ways in which each type of material has been or has reasonable potential to become exposed to storm water (e.g., spillage during handling; leaks from pipes, pumps, and vessels; contact with storage piles; waste handling and disposal; deposits from dust or overspray, etc.);

b) identification of the outfall or outfalls through which the material may be discharged if released;

c) A listing of significant spills and significant leaks of polluting materials that occurred at areas that are exposed to precipitation or that otherwise discharge to a point source at the facility. The listing shall include spills that occurred over the three (3) years prior to the effective date of this permit. The listing shall include the date, volume and exact location of release, and the action taken to clean up the material and/or prevent exposure to storm water runoff or contamination of surface waters of the state. Any release that occurs after the SWPPP has been developed shall be controlled in accordance with the SWPPP and is cause for the SWPPP to be updated as appropriate within 14 calendar days of obtaining knowledge of the spill or loss; and

d) a summary of existing storm water discharge sampling data (if available) describing pollutants in storm water discharges associated with industrial activity at the facility. This summary shall be accompanied by a description of the suspected source(s) of the pollutants detected.

3) An evaluation of the reasonable potential for contribution of significant materials to runoff from at least the following areas or activities: loading, unloading, and other material handling operations; outdoor storage, including secondary containment structures; outdoor processing activities; significant dust or particulate generating processes; discharge from vents, stacks and air emission controls; on-site waste disposal practices; maintenance and cleaning of vehicles, machines and equipment; sites of exposed and/or erodible soil; sites of environmental contamination listed under Part 201 (Environmental Response) of the Michigan Act; areas of significant material residue; and other areas where storm water may contact significant materials.

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b. Preventive Measures and Source Controls, Non-Structural
To prevent significant materials from contacting storm water at the source, the plan shall, at a minimum, include the following non-structural controls:

1) Description of a program for routine preventive maintenance which includes requirements for inspection and maintenance of storm water management and control devices (e.g., cleaning of oil/water separators and catch basins) as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters. A log of the inspection and corrective actions shall be maintained on file by the permittee, and shall be retained in accordance with Part I.A.7.f.

2) A schedule for comprehensive site inspection to include visual inspection of equipment, plant areas, and structural pollution prevention and treatment controls to be performed at least once every six (6) months. A report of the results of the comprehensive site inspection shall be prepared and retained in accordance with Part I.A.7.f. The report shall identify any incidents of non-compliance with the plan. If there are no reportable incidents of non-compliance, the report shall contain a certification that the facility is in compliance with this plan.

3) A description of good housekeeping procedures to maintain a clean, orderly facility.

4) A description of material handling procedures and storage requirements for significant materials. Equipment and procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The procedures shall identify measures to prevent the spilled materials from being discharged into storm water. The plan may include, by reference, requirements of either a Pollution Incident Prevention Plan (PIPP) prepared in accordance with the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code); a Hazardous Waste Contingency Plan prepared in accordance with 40 CFR 264 and 265 Subpart D, as required by Part 111 of the Michigan Act; or a Spill Prevention Control and Countermeasure (SPCC) plan prepared in accordance with 40 CFR 112.

5) Identification of areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion. The plan shall also identify measures used to control soil erosion and sedimentation.

6) A description of employee training programs which will be implemented to inform appropriate personnel at all levels of responsibility of the components and goals of the plan. The plan shall identify periodic dates for such training.

7) Identification of significant materials expected to be present in storm water discharges following implementation of non-structural preventative measures and source controls.

c. Structural Controls for Prevention and Treatment
Where implementation of the measures required by Part I.A.7.b. does not control storm water discharges in accordance with Water Quality Standards in Part I.A.7.h., the plan shall provide a description of the location, function, and design criteria of structural controls for prevention and treatment. Structural controls may be necessary:

1) to prevent uncontaminated storm water from contacting or being contacted by significant materials, and/or

2) if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with the Water Quality Standards in accordance with Part I.A.7.h.

d. Keeping Plans Current
1) The permittee shall review the plan on or before July 1 of each year, and maintain written summaries of the reviews. Based on the review, the permittee shall amend the plan as needed to ensure continued compliance with the terms and conditions of this permit.

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2) The plan shall also be updated or amended whenever changes or spills at the facility increase or have the potential to increase the exposure of significant materials to storm water, or when the plan is determined by the permittee or the Department to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Updates based on increased activity at the facility shall include a description of how the permittee intends to control any new sources of significant materials or respond to and prevent spills in accordance with the requirements of Parts I.A.7.a., I.A.7.b., and I.A.7.c.

3) The Department may notify the permittee at any time that the plan does not meet minimum requirements. Such notification shall identify why the plan does not meet minimum requirements. The permittee shall make the required changes to the plan within 30 days after such notification from the Department, and shall submit to the Department a written certification that the requested changes have been made.

e. Certified Storm Water Operator

The permittee shall have a storm water operator certified by the Department, as required by Section 3110 of the Michigan Act. The certified storm water operator shall have supervision over the facility's storm water treatment and control measures included in the plan. If the certified storm water operator is changed or an additional certified storm water operator is added, the permittee shall provide the name and certification number of the new operator to the Department. The new operator shall review and sign the plan.

f. Signature and Plan Review

1) The plan shall be signed by the certified storm water operator and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The plan shall be retained on site of the facility that generates the storm water discharge.

2) The permittee shall make plans, reports, log books, runoff quality data, and supporting documents available upon request to the Department.

g. Record Keeping

The permittee shall maintain records of all inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water runoff. All such records shall be retained for three (3) years.

h. Water Quality Standards

At the time of discharge, there shall be no violation of the Water Quality Standards in the receiving waters as a result of this discharge. This requirement includes, but is not limited to, the following conditions:

1) In accordance with Rule 323.1050 of the Water Quality Standards, the receiving waters shall not have any of the following unnatural physical properties in quantities which are or may become injurious to any designated use: unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits as a result of this discharge.

2) Any unusual characteristics of the discharge (i.e., turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department followed with a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition.

i. Significant Materials

Significant Materials means any material which could degrade or impair water quality, including but not limited to: raw materials; fuels; salt; solvents; detergents; plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (see 40 CFR 372.65); any chemical the facility is required to report pursuant to Section 313 of Emergency Planning and Community Right-to-Know Act (EPCRA); any material on the Critical Materials Register pursuant to Section 3111 of the Michigan Act; Hazardous Wastes as defined in Part 111 of the Michigan Act; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

PART I

Section A. Limitations and Monitoring Requirements

j. Prohibition of Non-storm Water Discharges
Discharges of material other than storm water shall be in compliance with an NPDES permit issued for the discharge. Storm water shall be defined to include the following non-storm water discharges provided pollution prevention controls for the non-storm water component are identified in the plan: discharges from fire hydrant flushing, potable water sources including water line flushing, fire system test water, irrigation drainage, lawn watering, routine building wash down which does not use detergents or other compounds, pavement wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material have been removed) and where detergents are not used, air conditioning condensate, springs, uncontaminated groundwater, and foundation or footing drains where flows are not contaminated with process materials such as solvents. Discharges from fire fighting activities are authorized by this permit, but do not have to be identified in the plan.

8. Facility Contact

The "Facility Contact" was specified in the application. The permittee may replace the facility contact at any time, and shall notify the Department in writing within 10 days after replacement (including the name, address and telephone number of the new facility contact).

a. The facility contact shall be (or a duly authorized representative of this person):
for a corporation, a principal executive officer of at least the level of vice president, or a designated representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the permit application or other NPDES form originates,
for a partnership, a general partner,
for a sole proprietorship, the proprietor, or
for a municipal, state, or other public facility, either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

b. A person is a duly authorized representative only if:
- the authorization is made in writing to the Department by a person described in paragraph a. of this section; and
- the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the facility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

Nothing in this section obviates the permittee from properly submitting reports and forms as required by law.

PART I

Section B. Schedule of Compliance

Schedule of Compliance Not Required

This section (Section B: Schedule of Compliance) is not needed for this permit. Combined sewer construction is described. in Part I.A. 6.

PART I

Section C. Industrial Waste Pretreatment Program

1. Federal Industrial Pretreatment Program

a. The permittee shall implement the Federal Industrial Pretreatment Program approved on April 10, 1985, and any subsequent modifications approved up to the issuance of this permit. Approval of substantial program modifications after the issuance of this permit shall be incorporated into this permit by minor modification in accordance with 40 CFR 122.63.

b. The permittee shall comply with Rules 323.2301 through 323.2317 of the Michigan Administrative Code (Part 23 Rules), the General Pretreatment Regulations for Existing and New Sources of Pollution (40 CFR Part 403), and the approved Federal Industrial Pretreatment Program.

c. The permittee shall have the legal authority and necessary interjurisdictional agreements that provide the basis for the implementation and enforcement of the approved Federal Industrial Pretreatment Program throughout the service area. The legal authority and necessary interjurisdictional agreements shall include, at a minimum, the authority to carry out the activities specified in Rule 323.2306(a).

d. The permittee shall develop procedures which describe, in sufficient detail, program commitments which enable implementation of the approved Federal Industrial Pretreatment Program, 40 CFR Part 403, and the Part 23 Rules in accordance with Rule 323.2306(c).

e. The permittee shall establish an interjurisdictional agreement (or comparable document) with all tributary governmental jurisdictions. Each interjurisdictional agreement shall contain, at a minimum, the following:

1) identification of the agency responsible for the implementation and enforcement of the approved Federal Industrial Pretreatment Program within the tributary governmental jurisdiction's boundaries; and

2) the provision of the legal authority which provides the basis for the implementation and enforcement of the approved Federal Industrial Pretreatment Program within the tributary governmental jurisdiction's boundaries.

f. The permittee shall prohibit discharges that:

1) cause, in whole or in part, the permittee's failure to comply with any condition of this permit or the Michigan Act;

2) restrict, in whole or in part, the permittee's management of biosolids;

3) cause, in whole or in part, operational problems at the treatment facility or in its collection system;

4) violate any of the general or specific prohibitions identified in Rule 323.2303(1) and (2);

5) violate categorical standards identified in Rule 323.2311; and

6) violate local limits established in accordance with Rule 323.2303(4).

g. The permittee shall maintain a list of its nondomestic users that meet the criteria of a significant industrial user as identified in Rule 323.2302(cc).

h. The permittee shall develop an enforcement response plan which describes, in sufficient detail, program commitments which will enable the enforcement of the approved Federal Industrial Pretreatment Program, 40 CFR Part 403, and the Part 23 Rules in accordance with Rule 323.2306(g).

i. The Department may require modifications to the approved Federal Industrial Pretreatment Program which are necessary to ensure compliance with 40 CFR Part 403 and the Part 23 Rules in accordance with Rule 323.2309.

PART I

Section C. Industrial Waste Pretreatment Program

j. The permittee shall not implement changes or modifications to the approved Federal Industrial Pretreatment Program without notification to the Department. Any substantial modification shall be subject to Department public noticing and approval in accordance with Rule 323.2309.

k. The permittee shall maintain an adequate revenue structure and staffing level for effective implementation of the approved Federal Industrial Pretreatment Program.

l. The permittee shall develop and maintain, for a minimum of three (3) years, all records and information necessary to determine nondomestic user compliance with 40 CFR Part 403, Part 23 Rules and the approved Federal Industrial Pretreatment Program. This period of retention shall be extended during the course of any unresolved enforcement action or litigation regarding a nondomestic user or when requested by the Department or the United States Environmental Protection Agency. All of the aforementioned records and information shall be made available upon request for inspection and copying by the Department and the United States Environmental Protection Agency.

m. The permittee shall evaluate the approved Federal Industrial Pretreatment Program for compliance with the 40 CFR Part 403, Part 23 Rules and the prohibitions stated in item f. (above). Based upon this evaluation, the permittee shall propose to the Department all necessary changes or modifications to the approved Federal Industrial Pretreatment Program no later than the next Industrial Pretreatment Program Annual Report due date (see item o. below).

n. The permittee shall develop and enforce local limits to implement the prohibitions listed in item f above. Local limits shall be based upon data representative of actual conditions demonstrated in a maximum allowable headworks loading analysis. An evaluation of whether the existing local limits need to be revised shall be submitted to the Department by January 1, 2004. The submittal shall provide a technical evaluation of the basis upon which this determination was made which includes information regarding the maximum allowable headworks loading, collection system protection criteria, and worker health and safety, based upon data collected since the last local limits review.

The following pollutants shall be evaluated:

1) Arsenic, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc;

2) Pollutants with the potential to be discharged in the effluent that are subject to limits or monitoring in this permit.

3) Pollutants that have an existing local limit; and,

4) Other pollutants of concern which would reasonably be expected to be discharged or transported by truck or rail or otherwise introduced into the POTW.

o. On or before April 1st of each year, the permittee shall submit to the Department, as required by Rule 323.2310(8), an Industrial Pretreatment Program Annual Report on the status of program implementation and enforcement activities. The reporting period shall begin on January 1st and end on December 31st. At a minimum, the Industrial Pretreatment Program Annual Report shall contain the following items:

1) additions, deletions, and any other modifications to the permittee's previously submitted nondomestic user inventory (Rule 323.2306(c)(i));

2) additions, deletions, and any other modifications to the permittee's approved Significant Industrial User List (Rule 323.2306(h));

3) a listing of the names of Significant Industrial Users not inspected by the permittee at least once during the reporting period or at the frequency committed to in the approved Federal Industrial Pretreatment Program;

PART I

Section C. Industrial Waste Pretreatment Program

4) a listing of the names of Significant Industrial Users not sampled for all required pollutants by the permittee at least once during the reporting period or at the frequency committed to in the approved Federal Industrial Pretreatment Program;

5) a listing of the names of Significant Industrial Users without a permit at any time during the reporting period;

6) a listing of the names of nondomestic industrial users in significant noncompliance for each of the criteria as defined in Rule 323.2302(dd)(i)-(viii);

7) proof of publication of all nondomestic users in significant noncompliance in the largest daily newspaper in the permittee's area;

8) a summary of the enforcement activities by the permittee during the report period. This Summary shall include:

a) a listing of the names of nondomestic users which were the subject of an enforcement action;

b) the enforcement action taken and the date the action was taken; and

c) whether the nondomestic user returned to compliance by the end of the reporting period (include date nondomestic user returned to compliance).

9) a listing of the names of Significant Industrial Users who did not submit pretreatment reports in accordance with requirements specified in their permit during the reporting period;

10) a listing of the names of Significant Industrial Users who did not self-monitor in accordance with requirements specified in their permit during the reporting period;

11) a summary of results of all the sampling and analyses performed of the wastewater treatment plant's influent, effluent, and biosolids conducted in accordance with approved methods during the reporting period. The summary shall include the monthly average, daily maximum, quantification level, and number of samples analyzed for each pollutant. At a minimum, the results of analyses for all locally limited parameters for at least one monitoring event that tests influent, effluent and biosolids during the reporting period shall be submitted with each report, unless otherwise required by the Department. Sample collection shall be at intervals sufficient to provide pollutant removal rates, unless the pollutant is not measurable; and

12) any other relevant information as requested by the Department.

PART I

Section D. Residuals Management Program

1. Residuals Management Program for Land Application of Biosolids

The permittee is authorized to land apply bulk biosolids or prepare bulk biosolids for land application in accordance with the requirements established in R323.2401 through R323.2418 of the Michigan Administrative Code (Part 24 Rules). The permittee has developed and implemented a Residuals Management Program (RMP) which complies with the requirements of the Part 24 Rules. Incineration, landfilling and other residual disposal activities shall be conducted in accordance with Part II.D.7. of this permit.

The permittee shall continue to implement the Residuals Management Program approved on October 18, 2000, and modifications thereto. The permittee shall certify that current residuals management practices are in accordance with the approved RMP, or propose modifications to the approved RMP. The program certification or proposed modifications shall be submitted to the Department on or before March 1, 2004. The approved RMP, and any modifications thereto, are enforceable requirements of this permit.

a. Residuals Management Program Description
At a minimum, the program includes:

1) a description of the type and size of facility generating the biosolids;
2) a description of the biosolids treatment processes including the volume of biosolids generated from each process;
3) storage volume provided, if applicable;
4) transportation methods and spill prevention plan;
5) a description of the land application method;
6) a listing of the required information on all land application sites, information on initial application notifications required by R323.2408 and class B biosolids site restriction notifications, if applicable, as specified in R323.2414(3)(f);
7) a land application plan which shows compliance with the applicable management requirements identified in R323.2410 and the loading rates and limitations as specified in R323.2408, R323.2409 and R323.2417;
8) a description of the pathogen reduction method used to comply with R323.2411, R323.2414 and R323.2418;
9) a description of the vector attraction reduction method used to comply with R323.2415; and
10) information on monitoring program, monitoring frequencies pursuant to R323.2412, and one year of records representing the volume and concentrations of pollutants in the biosolids.

b. Modifications to the Approved RMP
The permittee shall submit proposed modifications to its RMP to the Department for approval. The approved modification shall become effective upon the date of approval. Upon written notification, the Department may impose additional requirements and/or limitations to the approved RMP as necessary to protect public health and the environment from any adverse effect of a pollutant in the biosolids.

c. Recordkeeping
Records required by R323.2413 shall be kept for a minimum of five years. However, the records documenting cumulative loading for sites subject to cumulative pollutant loading rates shall be kept as long as the site receives biosolids.

d. Annual Report
The permittee shall report the number of dry tons of biosolids generated that were applied to the land in the State of Michigan in the state fiscal year (October 1 through September 30). The annual report shall include information required in R323.2413(2)(h) and R323.2413 (3) to (8), except R323.2413 (6)(b), (7)(b), and (8)(b). The report shall be submitted to the Department on or before October 30 of each year.

PART II

Section A. Definitions

This list of definitions may include terms not applicable to this permit.

Acute toxic unit (TU_a) means $100/LC_{50}$ where the LC_{50} is determined from a whole effluent toxicity (WET) test which produces a result that is statistically or graphically estimated to be lethal to 50% of the test organisms.

Bioaccumulative chemical of concern (BCC) means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum bioaccumulation concentration factor (BAF) information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in Table 5 of R 323.1057 of the Water Quality Standards.

Biosolids are the solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. This includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

Chronic toxic unit (TU_c) means 100/MATC or $100/IC_{25}$, where the maximum acceptable toxicant concentration (MATC) and IC_{25} are expressed as a percent effluent in the test medium.

Class B Biosolids refers to material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with the Part 24 Rules. Processes include aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying.

Daily concentration is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. If the parameter concentration in any sample is less than the quantification limit, regard that value as zero when calculating the daily concentration. The daily concentration will be used to determine compliance with any maximum and minimum daily concentration limitations (except for pH and dissolved oxygen). When required by the permit, report the maximum calculated daily concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the Discharge Monitoring Reports (DMRs).

For pH, report the maximum value of any individual sample taken during the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs and the minimum value of any individual sample taken during the month in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. For dissolved oxygen, report the minimum concentration of any individual sample in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Daily loading is the total discharge by weight of a parameter discharged during any calendar day. This value is calculated by multiplying the daily concentration by the total daily flow and by the appropriate conversion factor. The daily loading will be used to determine compliance with any maximum daily loading limitations. When required by the permit, report the maximum calculated daily loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

Department means the Michigan Department of Environmental Quality.

Detection Level means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

PART II

Section A. Definitions

EC_{50} means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

Fecal coliform bacteria monthly is the geometric mean of the samples collected in a calendar month (or 30 consecutive days). The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs.

Fecal coliform bacteria 7-day is the geometric mean of the samples collected in any 7-day period. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Flow Proportioned sample is a composite sample with the sample volume proportional to the effluent flow.

Grab sample is a single sample taken at neither a set time nor flow.

IC_{25} means the toxicant concentration that would cause a 25% reduction in a nonquantal biological measurement for the test population.

Interference is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both: 1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) therefore, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or, of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act. [This definition does not apply to sample matrix interference.]

Land Application means spraying or spreading biosolids or a biosolids derivative onto the land surface, injecting below the land surface, or incorporating into the soil so that the biosolids or biosolids derivative can either condition the soil or fertilize crops or vegetation grown in the soil.

LC_{50} means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.

Maximum acceptable toxicant concentration (MATC) means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.

MGD means million gallons per day.

Monthly frequency of analysis refers to a calendar month. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Monthly concentration is the sum of the daily concentrations determined during a reporting month (or 30 consecutive days) divided by the number of daily concentrations determined. The calculated monthly concentration will be used to determine compliance with any maximum monthly concentration limitations. When required by the permit, report the calculated monthly concentration in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs.

PART II

Section A. Definitions

For minimum percent removal requirements, the monthly influent concentration and the monthly effluent concentration shall be determined. The calculated monthly percent removal, which is equal to 100 times the quantity [1 minus the quantity (monthly effluent concentration divided by the monthly influent concentration)], shall be reported in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Monthly loading is the sum of the daily loadings of a parameter divided by the number of daily loadings determined in the reporting month (or 30 consecutive days). The calculated monthly loading will be used to determine compliance with any maximum monthly loading limitations. When required by the permit, report the calculated monthly loading in the "AVERAGE" column under "QUANTITY OR LOADING" on the DMRs.

National Pretreatment Standards are the regulations promulgated by or to be promulgated by the Federal Environmental Protection Agency pursuant to Section 307(b) and (c) of the Federal Act. The standards establish nationwide limits for specific industrial categories for discharge to a POTW.

NOAEL means the highest tested dose or concentration of a substance that results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

Noncontact Cooling Water is water used for cooling which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

Nondomestic user is any discharger to a POTW that discharges wastes other than or in addition to water-carried wastes from toilet, kitchen, laundry, bathing or other facilities used for household purposes.

Pretreatment is reducing the amount of pollutants, eliminating pollutants, or altering the nature of pollutant properties to a less harmful state prior to discharge into a public sewer. The reduction or alteration can be by physical, chemical, or biological processes, process changes, or by other means. Dilution is not considered pretreatment unless expressly authorized by an applicable National Pretreatment Standard for a particular industrial category.

POTW is a publicly owned treatment works.

Quantification level means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

Quarterly frequency of analysis refers to a three month period, defined as January through March, April through June, July through September, and October through December. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Regional Administrator is the Region 5 Administrator, U.S. EPA, located at R-19J, 77 W. Jackson Blvd., Chicago, Illinois 60604.

Significant industrial user is a nondomestic user that: 1) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or 2) discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the permittee as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's treatment plant operation or violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Tier I value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier I toxicity database.

Tier II value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier II toxicity database.

PART II

Section A. Definitions

Toxicity Reduction Evaluation (TRE) means a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

Water Quality Standards means the Part 4 Water Quality Standards promulgated pursuant to Part 31 of Act No. 451 of the Public Acts of 1994, as amended, being Rules 323.1041 through 323.1117 of the Michigan Administrative Code.

Weekly frequency of analysis refers to a calendar week which begins on Sunday and ends on Saturday. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Yearly frequency of analysis refers to a calendar year beginning on January 1 and ending on December 31. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

24-Hour Composite sample is a flow proportioned composite sample consisting of hourly or more frequent portions that are taken over a 24-hour period.

3-Portion Composite sample is a sample consisting of three equal volume grab samples collected at equal intervals over an 8-hour period.

7-day concentration is the sum of the daily concentrations determined during any 7 consecutive sampling days in a reporting month divided by the number of daily concentrations determined. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

PART II

Section B. Monitoring Procedures

1. Representative Samples

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to Section 304(h) of the Federal Act (40 CFR Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants), unless specified otherwise in this permit. Requests to use test procedures not promulgated under 40 CFR Part 136 for pollutant monitoring required by this permit shall be made in accordance with the Alternate Test Procedures regulations specified in 40 CFR 136.4. These requests shall be submitted to the Chief of the Surface Water Permits Section, Water Division, Michigan Department of Environmental Quality, P.O. Box 30273, Lansing, Michigan, 48909-7773. The permittee may use such procedures upon approval.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

3. Instrumentation

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

4. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the Department.

PART II

Section C. Reporting Requirements

1. Start-up Notification

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Department within 14 days following the effective date of this permit, and then 60 days prior to the commencement of the discharge.

2. Submittal Requirements for Self-Monitoring Data

Unless instructed on the effluent limits page to conduct "retained self-monitoring," the permittee shall submit self-monitoring data on the Environmental Protection Agency's Discharge Monitoring Report (DMR) forms (monthly summary information) and the Department's Daily Discharge Monitoring Report forms (daily information) to PCS-Data Entry, Water Division, Michigan Department of Environmental Quality, P.O. Box 30273, Lansing, Michigan, 48909-7773, for each calendar month of the authorized discharge period(s). The forms shall be postmarked no later than the 10th day of the month following each month of the authorized discharge period(s).

Alternative Daily Discharge Monitoring Report formats may be used if they provide equivalent reporting details and are approved by the Department. For information on electronic submittal of this information, contact the Department.

3. Retained Self-Monitoring Requirements

If instructed on the effluent limits page to conduct retained self-monitoring, the permittee shall maintain a year-to-date log of retained self-monitoring results and, upon request, provide such log for inspection to the staff of the Water Division, Michigan Department of Environmental Quality (in the case of hospitals, nursing homes and extended care facilities, to the staff of the Division of Health Facilities and Services, Michigan Department of Consumer and Industry Services). Retained self-monitoring results are public information and shall be promptly provided to the public upon request.

The permittee shall certify, in writing, to the Department, on or before January 10th of each year, that: 1) all retained self-monitoring requirements have been complied with and a year-to-date log has been maintained; and 2) the application on which this permit is based still accurately describes the discharge.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

Monitoring required pursuant to Part 41 of the Michigan Act or Rule 35 of the Mobile Home Park Commission Act (Act 96 of the Public Acts of 1987) for assurance of proper facility operation shall be submitted as required by the Department.

5. Compliance Dates Notification

Within 14 days of every compliance date specified in this permit, the permittee shall submit a written notification to the Department indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

PART II

Section C. Reporting Requirements

6. Noncompliance Notification

Compliance with all applicable requirements set forth in the Federal Act, Parts 31 and 41 of the Michigan Act, and related regulations and rules is required. All instances of noncompliance shall be reported as follows:

a. 24-hour reporting - Any noncompliance which may endanger health or the environment (including maximum daily concentration discharge limitation exceedances) shall be reported, verbally, within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission shall also be provided within five (5) days.

b. other reporting - The permittee shall report, in writing, all other instances of noncompliance not described in a. above at the time monitoring reports are submitted; or, in the case of retained self-monitoring, within five (5) days from the time the permittee becomes aware of the noncompliance.

Written reporting shall include: 1) a description of the discharge and cause of noncompliance; and 2) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

7. Spill Notification

The permittee shall immediately report any release of any polluting material which occurs to the surface waters or groundwaters of the state, unless the permittee has determined that the release is not in excess of the threshold reporting quantities specified in the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code), by calling the Department at the number indicated on the first page of this permit, or if the notice is provided after regular working hours call the Department's 24-hour Pollution Emergency Alerting System telephone number, 1-800-292-4706 (calls from out-of-state dial 1-517-373-7660).

Within ten (10) days of the release, the permittee shall submit to the Department a full written explanation as to the cause of the release, the discovery of the release, response (clean-up and/or recovery) measures taken, and preventative measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

8. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset, shall notify the Department by telephone within 24-hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

a. that an upset occurred and that the permittee can identify the specific cause(s) of the upset;

b. that the permitted wastewater treatment facility was, at the time, being properly operated; and

c. that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

PART II

Section C. Reporting Requirements

9. Bypass Prohibition and Notification

a. Bypass Prohibition - Bypass is prohibited unless:

1) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass; and

3) the permittee submitted notices as required under 9.b. or 9.c. below.

b. Notice of Anticipated Bypass - If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the bypass, and provide information about the anticipated bypass as required by the Department. The Department may approve an anticipated bypass, after considering its adverse effects, if it will meet the three (3) conditions listed in 9.a. above.

c. Notice of Unanticipated Bypass - The permittee shall submit notice to the Department of an unanticipated bypass by calling the Department at the number indicated on the first page of this permit (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.

d. Written Report of Bypass - A written submission shall be provided within five (5) working days of commencing any bypass to the Department, and at additional times as directed by the Department. The written submission shall contain a description of the bypass and its cause; the period of bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass; and other information as required by the Department.

e. Bypass Not Exceeding Limitations - The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 9.a., 9.b., 9.c., and 9.d., above. This provision does not relieve the permittee of any notification responsibilities under Part II.C.10. of this permit.

f. Definitions

1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

10. Notification of Changes in Discharge

The permittee shall notify the Department, in writing, within 10 days of knowing, or having reason to believe, that any activity or change has occurred or will occur which would result in the discharge of: 1) detectable levels of chemicals on the current Michigan Critical Materials Register, priority pollutants or hazardous substances set forth in 40 CFR 122.21, Appendix D, or the Pollutants of Initial Focus in the Great Lakes Water Quality Initiative specified in 40 CFR 132.6, Table 6, which were not acknowledged in the application or listed in the application at less than detectable levels; 2) detectable levels of any other chemical not listed in the application or listed at less than detection, for which the application specifically requested information; or 3) any chemical at levels greater than five times the average level reported in the complete application (see the first page of this permit for the date(s) the complete application was submitted). Any other monitoring results obtained as a requirement of this permit shall be reported in accordance with the compliance schedules.

PART II

Section C. Reporting Requirements

11. Changes in Facility Operations

Any anticipated action or activity, including but not limited to facility expansion, production increases, or process modification, which will result in new or increased loadings of pollutants to the receiving waters must be reported to the Department by a) submission of an increased use request (application) and all information required under Rule 323.1098 (Antidegradation) of the Water Quality Standards or b) by notice if the following conditions are met: 1) the action or activity will not result in a change in the types of wastewater discharged or result in a greater quantity of wastewater than currently authorized by this permit; 2) the action or activity will not result in violations of the effluent limitations specified in this permit; 3) the action or activity is not prohibited by the requirements of Part II.C.12.; and 4) the action or activity will not require notification pursuant to Part II.C.10. Following such notice, the permit may be modified according to applicable laws and rules to specify and limit any pollutant not previously limited.

12. Bioaccumulative Chemicals of Concern (BCC)

Consistent with the requirements of Rules 323.1098 and 323.1215 of the Michigan Administrative Code, the permittee is prohibited from undertaking any action that would result in a lowering of water quality from an increased loading of a BCC unless an increased use request and antidegradation demonstration have been submitted and approved by the Department.

13. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department 30 days prior to the actual transfer of ownership or control.

PART II

Section D. Management Responsibilities

1. Duty to Comply

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Special Conditions, or terms of this permit constitutes a violation of the Michigan Act and/or the Federal Act and constitutes grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of an application for permit renewal.

2. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Department, as required by Sections 3110 and 4104 of the Michigan Act.

3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

4. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or

b. upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the surface waters or groundwaters of the state resulting from noncompliance with any effluent limitation specified in this permit including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in noncompliance.

6. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of polluting materials in accordance with the requirements of the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code). For a Publicly Owned Treatment Work (POTW), these facilities shall be approved under Part 41 of the Michigan Act.

PART II

Section D. Management Responsibilities

7. Waste Treatment Residues

Residuals (i.e. solids, sludges, biosolids, filter backwash, scrubber water, ash, grit or other pollutants) removed from or resulting from treatment or control of wastewaters, shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. These laws may include, but are not limited to, the Michigan Act, Part 31 for protection of water resources, Part 55 for air pollution control, Part 111 for hazardous waste management, Part 115 for solid waste management, Part 121 for liquid industrial wastes, Part 301 for protection of inland lakes and streams, and Part 303 for wetlands protection. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwaters of the state.

8. Treatment System Closure

In the event that discharges from a treatment system are planned to be eliminated, the permittee shall submit a closure plan to the Department for approval. The closure plan shall include characterization of any wastewater and residuals which will remain on-site after the discharges are eliminated, along with disposal methods, proposed schedule, and any other relevant information as required by the Department. Closure activities involving waste treatment residuals shall be consistent with Part II.D.7. of this permit.

The permittee shall implement the closure activities in accordance with the approved plan. Any wastewater or residual disposal inconsistent with the approved plan shall be considered a violation of this permit. After proper closure of the treatment system, this permit may be terminated.

9. Right of Entry

The permittee shall allow the Department, any agent appointed by the Department or the Regional Administrator, upon the presentation of credentials:

a. to enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and

b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any discharge of pollutants.

10. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Act and Rule 2128 (Rule 323.2128 of the Michigan Administrative Code), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Act and Sections 3112, 3115, 4106 and 4110 of the Michigan Act.

PART II

Section E. Activities Not Authorized by This Permit

1. Discharge to the Groundwaters

This permit does not authorize any discharge to the groundwaters. Such discharge may be authorized by a groundwater discharge permit issued pursuant to the Michigan Act.

2. Facility Construction

This permit does not authorize or approve the construction or modification of any physical structures or facilities. Approval for such construction for a POTW must be by permit issued under Part 41 of the Michigan Act. Approval for such construction for a mobile home park, campground or marina shall be from the Water Division, Michigan Department of Environmental Quality. Approval for such construction for a hospital, nursing home or extended care facility shall be from the Division of Health Facilities and Services, Michigan Department of Consumer and Industry Services upon request.

3. Civil and Criminal Liability

Except as provided in permit conditions on "Bypass" (Part II.C.9. pursuant to 40 CFR 122.41(m)), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond the permittee's control, such as accidents, equipment breakdowns, or labor disputes.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee may be subject under Section 311 of the Federal Act except as are exempted by federal regulations.

5. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Federal Act.

6. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits or approvals as may be required by law.

APPENDIX B

Cost Opinion Information

CITY OF LANSING CSO CORRECTION PROGRAM

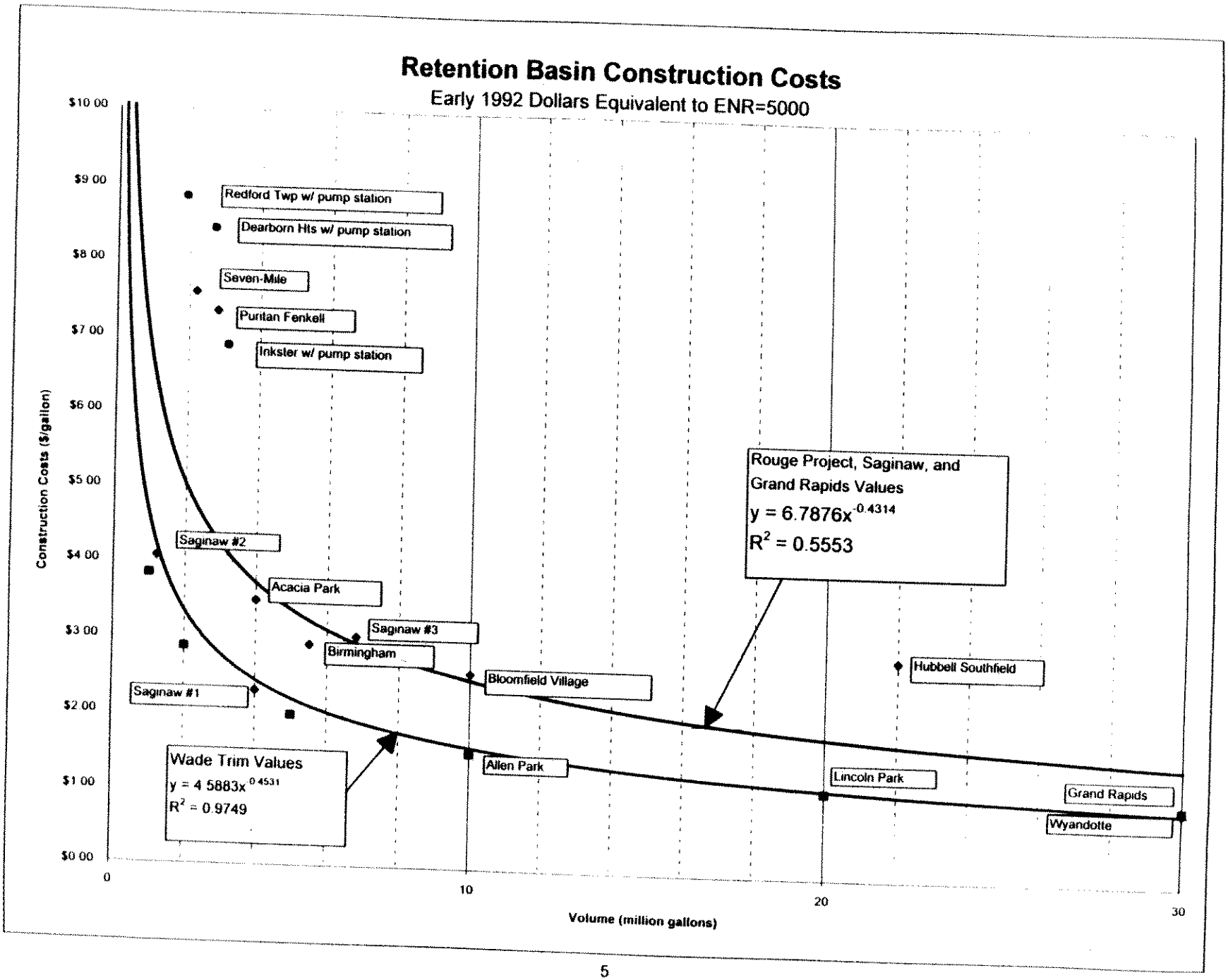
Project Plan Amendment No. 3

			Alternative1 Separation - ENR 7000							Alternative 2 Retention Option 1 - ENR 7000						
	TOTAL	Remaining	2020 by	Cost per	Pipe Length	Cost per	Construction	Admin, Eng, etc	Project	Basin Size	CDM Cost Table	Pipe Length	Cost per	Construction	Admin, Eng, etc	Project
	Acres	Acres	Acre	Acre	Lin Ft	Lin Ft	Cost	0.35	Cost	MG	$	Lin Ft	Lin Ft	Cost	0.35	Cost
008,009,012,015,019	1018	1018	320	42000	49,200	460	36,072,000	12,625,200	48,697,200	7	29,400,000	22,800	900	49,920,000	17,472,000	67,392,000
021,022,024,046	665	430	137	42000	53,400	750	45,804,000	16,031,400	61,835,400	3.7	18,060,000	43,600	1000	61,660,000	21,581,000	83,241,000
032 (No 037 or 034)	1216	386	0		28,200	460	12,972,000	4,540,200	17,512,200	3	18,060,000	1,300	900	19,230,000	6,730,500	25,960,500
032 and 034 (No 037)	1216	940	0		88,500	460	40,710,000	14,248,500	54,958,500	4 and 3	39,060,000	20,000	900	57,060,000	19,971,000	77,031,000

	Alternative 2 Retention Option 2 - ENR 7000						
	Basin Size	CDM Cost Table	Pipe Length	Cost per	Construction	Admin, Eng, etc	Project
	MG	$	Lin Ft	Lin Ft	Cost	0.35	Cost
008,009,012,015,019	4.6	22,638,000	22,800	900	20,520,000	15,105,300	58,263,300
021,022,024,046	2.4	16,239,300	43,600	1000	43,600,000	20,943,755	80,783,055
032 (No 037 or 034)	2.0	13,860,000	1,300	900	1,170,000	5,260,500	20,290,500
032 and 034 (No 037)	4.6	22,638,000	20,000	900	18,000,000	14,223,300	54,861,300

Notes:

Cost per acre at $60,000 for 2020 reprot for eligible plus ineligible City - adjusted above by 70% - the estimated eligible share
Alternative 1 base on current Project Plan Segmentation from 2020 Report at 70% eligibility due to rehab being fundable
Cost per linear foot of pipe for separation of 021,022,024,046 higher than others due to downtown CBD influence
Rehab costs based on current costs of $200/lf to $300/lf depending on area.(ENR 7880)
Rehab length for Retention based on 90% of remaining sewer requirng it
Cost per linear foot of pipe varies on average pipe size and depth - Retention is less pipe of larger sizes and deep.
021,022, 024, 046 - basin size reduced from 4 to 3.7 due to cap loop
021,022, 024, 046 - Lin Ft of pipe reduced by Kalamazoo & Seymour Streets
032 (without 034 & 037) uses a 3 MG basin as called for in the Project Plan
032 & 034 (without 037) uses a 3 MG basin for 032 and 4 MG basin for 034 as called for in the Project Plan
Project Plan Basin:(Option 1) Capture 1 yr/1 hr, 30 minute detention of 10 yr/1hr (0.26 in)
CDM Standard basin (Option 2) for complete capture of 1 yr 1 hr. (0.17 in)


Retention Basin Construction Costs
Early 1992 Dollars Equivalent to ENR=5000
Construction Costs ($/gallon)
$10 00
$9 00
$8 00
$7 00
$6 00
$5 00
$4 00
$3 00
$2 00
$1 00
$0 00
0
10
20
30
Volume (million gallons)
Redford Twp w/ pump station
Dearborn Hts w/ pump station
Seven-Mile
Puritan Fenkell
Inkster w/ pump station
Saginaw #2
Acacia Park
Saginaw #3
Birmingham
Saginaw #1
Bloomfield Village
Allen Park
Hubbell Southfield
Lincoln Park
Grand Rapids
Wyandotte
Rouge Project, Saginaw, and
Grand Rapids Values
y = 6.7876x^-0.4314
R^2 = 0.5553
Wade Trim Values
y = 4.5883x^-0.4531
R^2 = 0.9749

APPENDIX C

Public Participation Documentation
And Resolution of Adoption

APPENDIX D

Population and Income Data

U.S. Census Bureau

State & County QuickFacts

Lansing (city), Michigan

People QuickFacts	Lansing	Michigan
Population, 2003 estimate	118,379	10,079,985
Population, percent change, April 1, 2000 to July 1, 2003	-0.8%	1.4%
Population, 2000	119,128	9,938,444
Population, percent change, 1990 to 2000	-6.1%	6.9%
Persons under 5 years old, percent, 2000	8.2%	6.8%
Persons under 18 years old, percent, 2000	26.8%	26.1%
Persons 65 years old and over, percent, 2000	9.7%	12.3%
Female persons, percent, 2000	52.0%	51.0%
White persons, percent, 2000 (a)	65.3%	80.2%
Black or African American persons, percent, 2000 (a)	21.9%	14.2%
American Indian and Alaska Native persons, percent, 2000 (a)	0.8%	0.6%
Asian persons, percent, 2000 (a)	2.8%	1.8%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.1%	Z
Persons reporting some other race, percent, 2000 (a)	4.5%	1.3%
Persons reporting two or more races, percent, 2000	4.6%	1.9%
Persons of Hispanic or Latino origin, percent, 2000	10.0%	3.3%
Living in same house in 1995 and 2000, pct age 5+, 2000	48.5%	57.3%
Foreign born persons, percent, 2000	5.9%	5.3%
Language other than English spoken at home, pct age 5+, 2000	11.8%	8.4%
High school graduates, percent of persons age 25+, 2000	82.4%	83.4%
Bachelor's degree or higher, pct of persons age 25+, 2000	21.2%	21.8%
Mean travel time to work (minutes), workers age 16+, 2000	19.7	24.1
Housing units, 2000	53,159	4,234,279
Homeownership rate, 2000	57.5%	73.8%
Median value of owner-occupied housing units, 2000	$73,500	$115,600
Households, 2000	49,505	3,785,661
Persons per household, 2000	2.39	2.56
Median household income, 1999	$34,833	$44,667
Per capita money income, 1999	$17,924	$22,168
Persons below poverty, percent, 1999	16.9%	10.5%

Business QuickFacts	Lansing	Michigan
Wholesale trade sales, 1997 ($1000)	933,408	159,432,288

Retail sales, 1997 ($1000)	1,486,621	93,706,078
Retail sales per capita, 1997	$11,621	$9,576
Accomodation and foodservices sales, 1997 ($1000)	159,815	10,158,693
Total number of firms, 1997	8,047	677,473
Minority-owned firms, percent of total, 1997	13.3%	7.6%
Women-owned firms, percent of total, 1997	25.8%	27.2%
Geography QuickFacts	**Lansing**	**Michigan**
Land area, 2000 (square miles)	35	56,804
Persons per square mile, 2000	3,399.0	175.0
FIPS Code	46000	26
Counties		

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

FN: Footnote on this item for this area in place of data
NA: Not available
D: Suppressed to avoid disclosure of confidential information
X: Not applicable
S: Suppressed; does not meet publication standards
Z: Value greater than zero but less than half unit of measure shown
F: Fewer than 100 firms

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments

Last Revised: Thursday, 08-Jun-2006 09:32:38 EDT

City of Lansing

CSO Control Phasing Map

as of February 2007

Virg Bernero, Mayor

TETRA TECH

Ph IV Seg 4
Separation 013–North West
214 Acres
Rehabilitation and Storm Improvements

Ph III Seg 3
Separation 013–South
211 Acres

Ph IV Seg 3
Separation 013–West
144 Acres

Ph IV Seg 5
Separation 013–North East
298 Acres
Rehabilitation and Storm Improvements

Ph IV (Not Segmented)
Interceptor Improvements
Lansing Ave. Equalization Basin

Ph II Seg 5
Interceptor Improvements
Lansing Ave. Pump Station

Ph V Seg 1
Separation 014, 015 North
151 Acres

Ph IV (Not Segmented)
WWTP / Interceptor Improvements

Ph III Seg 5
WWTP Improvements

Ph II Seg 1
WWTP Improvements

Ph IV Seg 2
Separation 018–North
264 Acres

Ph III Seg 1
Northeast Sanitary Interceptor
103 Acres

Ph IV Seg 1
Separation 018–East
286 Acres

Ph IV Seg 5
Separation 045
60 Acres

Ph III Seg 2
Red Cedar Sub–Area K,
293 Acres

Ph II Seg 5
Red Cedar Sub–Area K
Interceptor
18 Acres

Ph II Seg 3
Tollgate Drain
Red Cedar Sub–Area L
226 Acres

Ph II Seg 2
Foster Ave. Interceptor–North
45 Acres

Ph II Seg 3
Red Cedar Sub–Area I/J
105 Acres

Ph VI Seg 4
Separation 016
76 Acres

Ph VI Seg 2
Separation 017
113 Acres

Ph V Seg 5
Separation 009, 010 175 Acres

Ph VI Seg 1
Separation 011, 012
45 Acres

Ph VI Seg 1
Separation 019
54 Acres

Ph IV Seg 4
Separation 018–South East
120 Acres

Ph VI Seg 3
Separation 008
353 Acres

Ph IV Seg 3
Separation 023
55 Acres

Ph III Seg 5
Red Cedar Sub–Area C
Separation 044
80 Acres

Ph V Seg 3
Separation 015 South
119 Acres

Phase VI Seg 4
Separation 022E–North
19 Acres

Ph IV Seg 5
018–SouthWest
64 Acres

Ph II Seg 1
Pere Marquette
11 Acres

Ph IV Seg 4
Separation 020
77 Acres

Ph III Seg 1
Red Cedar Sub–Area G/H
249 Acres

Ph II Seg 1
Foster Ave.
Interceptor–South
18 Acres

Ph I Seg 2
Red Cedar Sub–Area F
Separation 043
56 Acres

Ph II Seg 2
Clippert St. Stormwater
Pump Station (CSTOPS)

Ph I Seg 2
Harton St.
Equalization Basin

Ph II Seg 1
Harton St. Stormwater
Pump Station (HSTOPS)
and Storm Interceptors
East of Mifflin Ave.

Twin 90's Sewer
Rehabilitation

Ph II Seg 4
7X13 Express Storm
Outlet–Stage 1

Ph III Seg 2
7X13 Express Storm
Outlet–Stage 2

Ph II Seg 4
Separation 022 West,
231 Acres

Ph IV Seg 1
Capitol Loop
80 Acres

Ph I Seg 1
Separation 038
46 Acres

Ph I Seg 1
Separation 036
124 Acres

Ph I Seg 1
Separation 035
19 Acres

Ph VI Seg 5
022E–South
61 Acres

Ph VI Seg 5
Separation 033
57 Acres

Ph I Seg 1
Fayette St.
Sanitary Pump Station

Ph VI Seg 2
Separation 026
102 Acres

Ph II Seg 2
Red–Cedar
Sub–Area E
Separation 041
111 Acres

Ph III Seg 2
Moores Park Trunk Sewer
54 Acres

Ph V Seg 2
034 Area C
110 Acres

Ph I Seg 1
Separation 039,
040 34 Acres

Ph IV Seg 1
Separation 025
89 Acres

Ph I Seg 1
Separation 028,
029, 030, 031
75 Acres

Ph V Seg 2
032 Trunk Sewers
128 Acres

Ph III Seg 4
Separation 037
276 Acres

Ph V Seg 4
Separation 034 Area E
52 Acres

Ph V Seg 4
Separation 032 Local Sewers
258 Acres

Ph VI Seg 1
Separation 034 Area B
90 Acres

Ph V Seg 3
Separation 034 Area D
88 Acres

Ph IV Seg 5
Separation 034 Area A
160 Acres

	CSO SEWER SEPARATION ACREAGE STATUS							
	CSO Phase/ Segment	CSO Subarea Project Name	Original Combined Sewer Area to be Separated, Acres	Additional Separated Area to be Picked up by CSO Project, Acres	Total Area to be Removed from Overflow, Acres	Total Area Separated/ Removed from Overflow to date	Reduction of Average Annual Overflow Volume Million Gallons	PS Number	Completion Date
Construction Completed	Ph I Seg 1	028, 039	109		109	109	27	00004	12/4/1993
	Ph I Seg 1	035, 036N, 038N	104		104	104	**	35049	9/28/1993
	Ph I Seg 1	036S, 038S	85		85	85	39	45039	11/16/1993
	Ph I Seg 2	043	56		56	56	**	38060	6/2/1994
	Ph II Seg 1	Foster S.	Separated Area		**	**	**	00009	12/5/1996
	Ph II Seg 1	Pere Marquette.	11		11	11	**		
	Ph II Seg 2	Foster N.	45		45	45	**	38062	6/25/1996
	Ph II Seg 2	041	111		111	111	25	37061	6/25/1996
	Ph II Seg 3	I/J	105		105	105	**	38066	9/3/1997
	Ph II Seg 3	Tollgate	226	347	573	573	**	28042/28043	10/3 /1997
	Ph II Seg 4	022W	155	96	251	251	45	35056	12/1/1998
	Ph II Seg 5	Area K Int.	18		18	18	**	27061	10/11/2002
	Ph III Seg 1	GH	249		249	249	**	37066	11/1/2001
	Ph III Seg 1	NEI	103		103	103	**	27059	6/17/2002
	Ph III Seg 2	MPTS	54		54	54	**	46115	8/1/2001
	Ph III Seg 2	042	293		293	293	266		
	Ph III Seg 3	013 South	211		211	211	**	16071/16072	10/29/2002 for A 4/8/2003 for B
	Ph III Seg 4	037	276		276	276	99	55050/55051	12/11/2003
	Ph III Seg 5	044	80		80	80	19	38072	8/30/2004
	Ph IV Seg 1	Capitol Loop	80		80	80	**	36303	
	Ph IV Seg 1	018E, 025	375		375	375	23	27064/37073	10/17/2005 for 018E 7/11/2005 for 025
	Ph IV Seg 2	018N, St. Joe	265		265	265	**	17043/17044	12/13/2006 for 018N-A 9/1/2006 for 018N-B
Construction On-going	Ph IV Seg 3	023, 013W, Dumpster Alley, Michigan Ave.	204		204	95	15	36309/16077	
	Subtotal		3215	443	3658	3549	558		
Construction Starts in 2007	Ph IV Seg 4	018E, 020, 013 NW	411		411		27	27067, 37076, 15088	
	Ph IV Seg 4	Kalamazoo	6		6		**	36316	
	Ph IV Seg 4	Seymour Ave	5		5		**	36316	
	Ph IV Seg 4	Washington Sq	4		4		**	36315	
Design On-going	Ph IV Seg 5	018SW, 045, 013 NE	422		422		367	26072, 37078, 16079	
	Ph IV Seg 5	034A	160		160		**	55054	
	Ph IV Seg 5	Walnut St	5		5		**	36317	
	Ph IV Seg 5	Grand Avenue	10		10		**	36317	
Future	Ph V Seg 1	014, 015, 034B	241		241		**		
	Ph V Seg 1	Allegan	3		3		**		
	Ph V Seg 1	Chestnut	5		5		**		
	Ph V Seg 2	032, 034C	238		238		**		
	Ph V Seg 2	Washington Sq	4		4		**		
	Ph V Seg 2	Ottawa	4		4		**		
	Ph V Seg 3	015S, 034D	207		207		79		
	Ph V Seg 3	Shiawassee	39		39		**		
	Ph V Seg 4	032, 034E	310		310		248		
	Ph V Seg 4	Capitol Ave	19		19		**		
	Ph V Seg 5	009, 010, 021	214		214		68		
	Ph V Seg 5	Washington Ave	7		7		**		
	Ph VI Seg 1	K-zoo/Townsend	21		21		**		
	Ph VI Seg 1	011, 012, 019	199		199		53		
	Ph VI Seg 2	Washtenaw	5		5		**		
	Ph VI Seg 2	Walnut/Lenawee	16		16		**		
	Ph VI Seg 2	017, 026	215		215		51		
	Ph VI Seg 3	Pine/Chestnut	25		25		**		
	Ph VI Seg 3	008	353		353		58		
	Ph VI Seg 4	Ionia	30		30		**		
	Ph VI Seg 4	016, 022E North	95		95		11		
	Ph VI Seg 5	Misc. Streets, Completes 024, 046	44		44		36		
	Ph VI Seg 5	022E South	61		61		74		
	Ph VI Seg 5	024W, 033	131		131		22		
	Subtotal		3509	0	3509		1094		
	TOTALS		6724	443	7167	3549	1652		

Percentage of Total CSO Area Separated: 50%
Note: Total area increased from original plan due to including all of 013N tributary area.
** Overflow volume included with other subareas

Ph V Seg 5
Separation 021
39 Acres

Ph V Seg 3
Separation Shiawasee St.
015=21 Acres, 021=18 Acres

Ph VI Seg 4
Separation Ionia St.
31 Acres Total, 30 Acres CSO

Ph V Seg 1
Separation Chestnut St.
021=3 Acres, 022=2 Acres

Ph VI Seg 1
Separation Kalamazoo St.
Separation Townsend St.
21 Acres

Ph VI Seg 5
Separation 024 West
74 Acres

Ph IV Seg 5
Separation Walnut St.
021=3 Acres, 022=2 Acres

Ph V Seg 4
Separation Capitol Ave.
021=5 Acres, 022=3 Acres,
046=4 Acres, and 024=7 Acres

Ph IV Seg 4
Separation Seymour Ave.
5 Acres

Ph IV Seg 4
Separation Washington Square
7 Acres Total, 4 Acres CSO

Washington Square
Reconstruction and Separation
Completed 2001

Ph IV Seg 3
Separation Michigan Ave.
5 Acres Total, 4 Acres CSO

Ph V Seg 1
Separation Allegan St.
4 Acres Total, 3 Acres CSO

Ph VI Seg 2
Separation Washtenaw St.
5 Acres

Ph V Seg 2
Separation Washington Square
4 Acres,
Separation Ottawa St. 4 Acres

Ph IV Seg 4
Separation Kalamazoo St.
8 Acres Total, 6 Acres CSO

Ph IV Seg 5
Separation Grand Ave.
13 Acres Total, 10 Acres CSO

Ph VI Seg 5
Separation St. Joe Ave.=9 Acres
Separation Washtenaw St.=9 Acres
Separation 100 Block=2 Acres
S. Washington Ave.=2 Acres
Separation Portions Lenawee St.=8 Acres
Separation Hillsdale St.=10 Acres
Separation Cherry St.=5 Acres Total,
4 Acres CSO
45 Acres Total, 44 Acres CSO

Ph IV Seg 2
Separation St. Joe
1 Acres

Ph V Seg 5
Separation Washington Ave.
7 Acres

Ph VI Seg 3
Separation Pine St.
Separation Chestnut St.
25 Acres

Ph VI Seg 2
Separation Walnut St.
Separation Lenawee St.
16 Acres

CSO Regulators/Overflows Abandoned			
Regulator	Overflow	Date Abandoned	Notes
	007	6/30/2004	1
025		8/15/2005	
028		11/9/1993	
	029	10/4/1993	
	030	10/22/1993	
	031	10/4/1993	
035		11/3/1993	
036		9/22/1993	Relocated
	036	1/12/2000	
037		12/25/2005	
038		9/22/1993	
039		11/3/1993	
	040	11/9/1993	
041		6/4/1996	
042		7/25/2002	
	043	7/6/1995	
044		6/30/2004	

Note 1: 007 is an emergency SSO overflow
Total Number of permitted CSO regulators and overflows at start of CSO Control Program (1992): 40
Number of CSO Regulators/Overflows Abandoned: 16
Percentage of CSO Regulators/Overflows Abandoned: 40.0%%

Legend

- REGULATOR (ACTIVE)
- OVERFLOW (ACTIVE)
- ABANDONED REGULATOR
- ABANDONED OVERFLOW
- PUMPING STATION
- EQUALIZATION BASIN
- CSO TRIBUTARY AREA
- PROJECT BOUNDARY

N

- CONSTRUCTION COMPLETED
- 2006 PH IV SEG 3 (UNDER CONSTRUCTION)
- 2007 PH IV SEG 4 (BEGIN CONSTRUCTION SPRING 2007)
- 2008 PH IV SEG 5 (UNDER DESIGN)
- 2009 PH V SEG 1
- 2010 PH V SEG 2
- 2011 PH V SEG 3
- 2012 PH V SEG 4
- 2013 PH V SEG 5
- 2014 PH VI SEG 1
- 2015 PH VI SEG 2
- 2016 PH VI SEG 3
- 2017 PH VI SEG 4
- 2018 PH VI SEG 5

NOTE:

DOES NOT DENOTE SEQUENCING AS DETAILED IN 2020 SEGMENTATION PLAN. THIS MAP REPRESENTS PHASE/ SEGMENT TO BE AWARDED UNDER THE SRF LOAN PROGRAM. VARIOUS 2–YEAR CONTRACTS WILL BE CONSTRAINED TO FACILITATE THE 2020 SEGMENTATION.

DETAILS OF DOWNTOWN SEGMENTATION

NOTE:
AREAS LISTED INCLUDE AREA OUTSIDE OF RIGHT–OF–WAY
ONLY RIGHT–OF–WAY IS SHADED FOR CLARITY.

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